CONECO ENVIRONMENTAL

PHASE I - INITIAL SITE INVESTIGATION
FORMER WINCHESTER INDUSTRIES, INC.
230 AND 238 BODWELL STREET
AVON, MASSACHUSETTS
DEP SITE NO. 4-0634

SUBMITTED TO:

Mr. Peter Runton
130 Randolph Avenue
Milton, Massachusetts 02186

April 19, 1995
Project No. 3184

CONECO ENVIRONMENTAL

ENGINEERS & SCIENTISTS

BRIDGEWATER, MA
PROVIDENCE, RI
GLASTONBURY, CT

April 19, 1995
Project No. 3184

Mr. Peter Runton
130 Randolph Avenue
Milton, Massachusetts 02186

RE: Phase I - Initial Site Investigation
Former Winchester Industries, Inc.
230 and 238 Bodwell Street
Avon, Massachusetts
DEP Site No. 4-0634

Dear Mr. Runton:

In accordance with our proposal dated February 2 and March 7, 1995, CONECO Environmental Corporation (CONECO) has conducted a Phase I - Initial Site Investigation of the former Winchester Industries, Inc. located at 230 and 238 Bodwell Street in Avon, Massachusetts, hereinafter, the "Site." The purpose of this Phase I - Initial Site Investigation was to describe current Site conditions and to evaluate potential soil and groundwater contamination at the site. Assessment procedures employed in this investigation were as required for a "Phase I - Initial Site Investigation" as presented in the revised "Massachusetts Contingency Plan" (310 CMR 40.0000).

CONECO's investigations are detailed in the attached report. If there are any questions, please contact the undersigned.

Sincerely,
CONECO Environmental Corporation

Derek C. Volkin
Project Geologist

Brian F. Klingler
Project Manager

Ronald F. Bukoski, P.E., L.S.P.
Principal

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1.0 EXECUTIVE SUMMARY

Environmental conditions of the industrial property located at 230 and 238 Bodwell Street in Avon, Massachusetts were evaluated by the scope of work required for a "Phase I - Initial Site Investigation" as presented in the revised "Massachusetts Contingency Plan" (310 CMR 40.0000). The purpose of this Phase I - Initial Site Investigation was to describe current Site conditions, determine Site history, and to evaluate potential soil and groundwater relating to elevated concentrations of chlorinated compounds discovered at the Site in 1988. A summary of the investigation, findings and recommendations for this respective area follows.

The Site, approximately 2.36 acres in total area, is located in the Avon Industrial Park, approximately 200 feet north of the intersection of Bodwell Street and Ledin Drive in Avon, Massachusetts. According to available records and personnel familiar with the Site, the Site was first developed in 1972 with the construction of the Winchester Industries, Inc. marine electrical switches manufacturing and assembly facility. This building is located on the southern portion of the Site (currently designated as 230 Bodwell Street). A second building (currently designated as 238 Bodwell Street) was constructed in the northern portion of the Site in 1979 as an addition to Winchester Industries, Inc. and was utilized for warehouse storage and office space by Winchester Industries, Inc. and the Jacques Tool Company. Both Site buildings were situated on one parcel of land, owned by Winchester Industries, Inc., and designated as 230 Bodwell Street.

A series of Site investigations were conducted at the Site including an initial subsurface investigation by Kurz Associates, Inc. (KAI) in 1988 which detected concentrations of trichloroethene, trans-1,2-dichloroethene, and background concentrations of xylenes at the Site. In addition, elevated concentrations of trichloroethene were detected in the septic tanks associated with Winchester Industries, Inc. manufacturing and assembly facility, currently Cuming Corporation. The septic tanks were subsequently pumped out and the primary septic tank was resampled. Elevated concentrations of chlorinated compounds were detected in this sample.

Due to elevated concentration of chlorinated compounds discovered in the septic tank in the eastern portion of the Site, the Site was listed as a Non-Priority Disposal Site with the DEP and a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Site with the EPA.

A supplemental investigation was conducted by Gale Associates, Inc. in 1988 which consisted of the installation of a bedrock groundwater monitoring well, MW-5, southeast of the previously sampled septic tank/leaching field area. No VOCs or metals were detected in this monitoring well. Groundwater monitoring well KOW-2 was sampled in December 1988 and concentrations of trichloroethylene (1,300 ppb) and of tetrachloroethane (43 ppb) were detected. This groundwater monitoring well was sampled again in March 1989, and 520 ppb

trichloroethylene was detected. Additional groundwater monitoring of KOW-2 detected no VOCs in five subsequent sampling rounds. An additional groundwater sampling round was conducted in 1991 and consisted of resampling of groundwater monitoring wells KOW-2, MW-4, and MW-5. No VOCs were detected in these three monitoring wells.

In 1992, this parcel was divided into a southern and northern parcel, 230 and 238 Bodwell Street, respectively. The southern portion of the Site was purchased by 230 Bodwell Corporation and has been occupied by Cuming Corporation, a manufacture of flotation devices and radar absorption and deflective devices, since 1992. The northern portion of the Site was purchased by Mr. Peter Runton and was occupied by Classic Design, a fiberglass sunroof manufacturing and installation company, until 1993. Since 1993, 238 Bodwell Street has been occupied by Conrad Corporation, a manufacturer of wooden office fixtures.

In order to determine the presence of "No Significant Risk" at the Site pursuant to the revised MCP 310, CMR 40.0000, the Phase I - Initial Site Investigation was undertaken by CONECO including determinations of on-Site soil conditions. Observations made during the performance of eight test borings indicated unconsolidated deposits of miscellaneous fill material from grade to approximately 2 to 5 feet below grade underlain by glacial till from 2 to 6 feet below grade. The glacial till was underlain by bedrock. The only photoionization detector (PID) reading measured during this test boring program was recorded at B-8 (4-6') at 0.8 ppm. No other volatile compounds were detected during the test boring program.

Soil analysis of the test boring samples revealed no concentrations of TPH or VOCs at or above the Method I Risk Characterization Standards for S-2 Soil (310 CMR 40.0975(6)(a)). A TPH concentration (610 ppm), above the most stringent S-1 standard of 500 ppm, detected in boring B-8 at 2-4' is considered to be a separate release from the initial listing of the Site which relates to chlorinated compounds. As such, this TPH concentration is below the reportable concentration of 2,500 ppm for S-2 soil (RCS-2); therefore, is not subject to any reporting criteria as defined in the MCP (310 CMR 40.0000).

Laboratory analysis of groundwater samples from the five on-Site monitoring wells revealed no concentrations of VOCs or TPH at or above the Method I Risk Characterization Standards for GW-2 and GW-3 Groundwater (310 CMR 40.0974(2)). The groundwater flow direction at the Site was determined to have an overall hydraulic gradient in a southeasterly direction.

A condition of "No Significant Risk" exists for the soil and groundwater, as none of the concentrations of the detected compounds were at or above the Method 1 Standards. A condition of "No Significant Risk" is present at the Site, as defined in 310 CMR 40.0006.

Based on the Phase I - Initial Site Investigation, the following recommendations are offered as a guide to regulatory requirements needed to further address the release of oil and hazardous materials identified at the Site.

1. A copy of this report should be submitted to the DEP - Southeast Region. A Supplemental Risk Reduction Transmittal Form has been completed for this submittal and is included in Appendix H. In addition, the availability of the report should be made to the Avon Chief Municipal Officer and Board of Health, pursuant to 310 CMR 40.1403.

2. As a Condition of "No Significant Risk" exists at the Site, a Response Action Outcome (RAO) Statement should be submitted to the DEP pursuant to 310 CMR 40.1000. The RAO statement should apply to the entire Disposal Site.

2.0 INTRODUCTION

In accordance with our proposal dated February 2 and March 7, 1995, CONECO has performed a Phase I - Initial Site Investigation of the former Winchester Industries, Inc. located in the Avon Industrial Park at 230 and 238 Bodwell Street in Avon, Massachusetts, hereinafter the "Site." Consistent with guidelines for a Phase I - Initial Site Investigation as presented in the Massachusetts Contingency Plan (310 CMR 40.0000), this investigation was intended to describe current Site conditions and to evaluate potential soil and groundwater contamination at the Site. To accomplish these goals, CONECO performed the following tasks:

1. A surficial field inspection of the Site was conducted by CONECO personnel on February 6, 1995.

2. The Avon Assessors' Office and Building Department were visited on February 6 and 10, 1995 to determine Site history, including previous ownership and usage. Sanborn Fire Insurance Maps, available at the Boston Public Library, were reviewed on February 15, 1995, to further document Site history and to determine if there is evidence that oil or hazardous materials had been historically used or stored at or in the vicinity of the Site.

3. The Avon Clerk's Office, Fire Department, Health Department, and Conservation Commission were visited and/or contacted on February 6 and 10, 1995 to obtain information regarding the storage or release of oil or hazardous materials and the location of potentially sensitive environmental receptors on or in the vicinity of the Site.

4. Information contained in the Spills, Release Tracking Number (RTN), Sites Databases, and available General Files at the Southeastern Regional Office of the Department of Environmental Protection (DEP) in Lakeville, Massachusetts, was reviewed on February 14, 1995 regarding past releases of oil or hazardous materials on the Site or on properties in the vicinity of the Site.

5. The EPA Region I National Priorities List (NPL), Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), and Resource Conservation Recovery Act (RCRA) Treatment, Storage, and/or Disposal (TSD) Facilities List of hazardous waste generators were reviewed for the Site and properties within a 1.0-mile radius of the Site. Information concerning NPL and CERCLA properties, if any were identified, was reviewed at the EPA Region I Records Center. The Emergency Response Notification System (ERNS), Site Enforcement Tracking System (SETS), EPA Facility Index System (EPA FINDS), and the Resource Conservation Recovery Information System (RCRIS) were reviewed for the Site and properties located within a 0.5-mile radius of the Site. Information concerning RCRA properties, if any were identified, was reviewed at the DEP Regional Office.

6. A Site-specific Health and Safety Plan was prepared and implemented for CONECO on-Site investigatory personnel.

7. Eight test borings were performed at the Site on March 17, 1995. Test boring soil samples were screened for volatile compounds using an HNu Model HW-101 PID. Selected soil samples from six of the borings were submitted to National Environmental Testing, Inc. (NET), and analyzed for VOCs by EPA Method 8240, and TPH by EPA Method 418.1.

8. Groundwater monitoring wells were installed in four of the eight test boring locations on March 17, 1995. Groundwater samples were taken from all on-Site monitoring wells having sufficient groundwater. Groundwater samples from three monitoring wells and two pre-existing monitoring wells were collected on March 24, 1995 and were submitted to NET, Inc., and analyzed for VOCs by EPA Method 8240. The monitoring wells located on 230 Bodwell Street were also analyzed for dissolved cadmium and chromium by EPA Method 200 (ICP).

9. A survey of the Site was performed on March 29, 1995 in order to locate on-Site monitoring wells and other significant Site features. Groundwater depth was measured on March 23, 1995.

10. As determined by the above investigations, the conditions of the Site were evaluated within the scope and meaning of the Massachusetts Contingency Plan (310 CMR 40.0000).

3.0 SITE OVERVIEW

The Site consists of two buildings on two parcels of land, formerly owned and occupied by Winchester Industries, Inc., in the Avon Industrial Park at 230 and 238 Bodwell Street, approximately 200 feet north of the intersection of the Bodwell Street and Ledin Drive. The building at 230 Bodwell Street is situated on the southern parcel and is currently occupied by

Cuming Corporation. This portion of the Site was formerly Winchester Industries, Inc. manufacturing and assembly facility. The building at 238 Bodwell Street is situated on the northern parcel and is currently occupied by Conrad Corporation. This portion of the Site was formerly Winchester Industries, Inc. and Jacques Tool Company storage and office building. Both Site buildings are utilized as single-story office and manufacturing buildings with a mezzanine above the office areas.

The Site is rectangular-shaped and is approximately 2.36 acres in total area. A Site Locus Plan and Site Plot Plan are provided for reference as Figures 1 and 2, respectively. Site photographs and an aerial photograph dated March 27, 1990 are included as Appendix A (Tab 1) and Appendix B (Tab 2), respectively.

3.1 Site Parameters

Assessors' Designation: Information at the Avon Assessors' Office indicates that 230 Bodwell Street is listed as Map B7, Block 1, Lot 1 and 238 Bodwell Street is listed as Map B7, Block 1, Lot 2. The Site is zoned for industrial use.

Acreage: According to the Avon Assessor's Field Card, 230 Bodwell Street (Lot 1) is approximately 1.38 acres and 238 Bodwell Street (Lot 2) is approximately 0.98 acres in total area.

Coordinates: Latitude 42° 08' 13" N — Longitude 71° 03' 39" W
UTM 4,666,700 meters N — UTM 329,625 meters E (Zone 19)

Ownership: According to the Avon Assessors' Field Card, the parcel designated as 230 Bodwell Street (Lot 1) is owned by 230 Bodwell Corporation and the parcel designated as 238 Bodwell Street (Lot 2) is owned by Mr. Peter Runton.

Occupancy & Use: The building at 230 Bodwell Street is occupied by Cuming Corporation, a manufacturer of syntactic foam flotation modules, radar reflective and absorption devices. The building at 238 Bodwell Street is occupied by the Conrad Corporation, a manufacturer of wooden office fixtures. The 238 Bodwell Street parcel contains a concrete platform and ramp located near the southern boundary, which are utilized by Cuming Corporation for temporary equipment storage.

Structures: The building at 230 Bodwell Street was constructed in 1972 and contains a single-story metal frame building situated on a concrete floor slab having a total footprint area of approximately 15,240 square feet. The building at 238 Bodwell Street was constructed in 1972 and contains a single-story metal frame building, with a brick veneer front, situated on a concrete floor slab having a total footprint area of approximately 16,800 square feet. A

concrete ramp, formerly a covered walkway connecting the two buildings, slopes downward from 230 Bodwell Street to 238 Bodwell Street. A portion of the ramp at 238 Bodwell Street was observed to have been removed and replaced with gravel.

Utilities: The Site is serviced by aboveground electric lines, underground natural gas lines, and municipal water. Three pole-mounted transformers are located on the 230 Bodwell Street portion of the Site, near the property line of 238 Bodwell Street. Overhead lines from this utility pole service both Site buildings. Two floor-mounted transformers are located inside the building at 238 Bodwell Street. A utility plan is provided for reference as Figure 3.

Waste Disposal: The Site's sanitary discharge is to two on-Site septic systems and associated leaching fields located in the front (eastern) portion both parcels comprising the Site. Solid waste is stored in a dumpster in the rear (western) portion of parcels of the Site and is disposed by an independent contractor on a weekly basis. Hazardous waste generated at Cuming Corporation, 230 Bodwell Street, consists of small quantities of waste oil. The waste oil is stored in three 55-gallon drums on a concrete platform, outside of the building and is removed by a licensed contractor on an as-needed basis. In addition, several empty drums of epoxy resin were observed outside, under a trailer in the rear portion of the lot. The drums are reportedly removed from the Site during deliveries of additional epoxy resin. Hazardous waste generated at Conrad Corporation, 238 Bodwell Street, consists of excess paint thinner and lacquers, which are stored in a 55-gallon drum located in a metal cabinet within this building. The 55-gallon drum is periodically removed from the Site by a licensed contractor.

Site Access/ Barriers: The Site is accessed by two curb cuts on Bodwell Street. A 2-foot wooden post and rail fence is located along the front portion of the Site. A 4-foot wood stockade fence is located along the western (rear) Site boundary of 230 Bodwell Street.

Vegetation: Vegetation at the Site consists of sparse underbrush, located in the western portion of the Site, and landscaped areas located in the eastern and southern portion of the Site.

Easements: According to municipal records, a drainage easement containing the Bodwell Brook culvert traverses the gravel parking areas located in the rear portion of the Site.

Surface Water: Bodwell Brook is located within a below grade culvert, approximately 50 feet from the Site buildings. This brook originates in a wetland area in

Stoughton, approximately 2,000 feet north of the Site, and follows a southerly water course, traversing several properties along Bodwell Street, in the Avon Industrial Park. Bodwell Brook eventually connects with Beaver Brook approximately 3,000 feet south of the Site and discharges into the Brockton Reservoir, located approximately 5,000 feet south of the Site.

3.2 Adjacent Properties

North: The Site is bordered to the north by Thorson Compufab, a steel fabricator. Additional commercial and industrial properties are located further north of the Site.

East: Bodwell Street abuts the Site to the east. Colonial Trucking and New England Sportswear are located on the opposite side of Bodwell Street, approximately 50 feet east of the Site. Parker Transportation is located approximately 200 feet further to the east.

South: The Site is bordered to the south by the Grossman Cap Company. Ledin Drive and additional commercial and industrial properties are located further south of the Site.

West: The Site is bordered to the west by a paved portion of the former Boomers Caterers Food Service, on Ledin Drive. Route 24 is located approximately 800 feet west of the Site.

3.3 Topography and Drainage

Based upon a review of the Norwood USGS (7.5 x 15 minute) quadrangle map, the Site is located approximately 225 feet above mean sea level (MSL). Site topography slopes downward to the northwest. Regional topography within a 0.5-mile radius of the Site is hilly with topographic elevation ranging from 210 to 282 feet above MSL. Site drainage consists of infiltration and overland flow in undeveloped portions of the Site and sheet flow in paved and gravel parking areas of the Site.

A total of three catch basins were located at the Site. Two catch basins were observed in the front, landscaped area along the 230 and 238 Bodwell Street property line. These catch basin reportedly discharge to the Bodwell Brook culvert. The third catch basin was observed adjacent to the southeastern corner of the building at 238 Bodwell Street. This catch basin discharges to an outfall located on the northeastern corner of this building.

According to the May 15, 1980 FEMA Flood Insurance Rate Map for the Town of Avon, Community Panel Number 251231 0001B, the central portion of the Site falls within a "Zone B" area. Remaining portions of the Site fall within a "Zone C." Zone B is defined as areas between the limits of a 100-year and 500-year flood. Zone C is defined as an area of minimal flooding potential.

3.4 Sensitive Receptors

A Site Scoring Map, prepared by the Massachusetts Geographic Information System (GIS), was obtained and is included as Figure 4. This map denotes aquifer yields, wellhead protection areas, water supplies, NHESP Estimated Habitats of Rare Wetlands Wildlife & Priority Habitats, Areas of Critical Environmental Concern, and other potential sensitive receptors located within 500 feet and 0.5 miles of the Site. Potential sensitive receptors were also identified through the surficial Site inspection, and the USGS Norwood Quadrangle topographic map.

The GIS Site Scoring Map identified no potential sensitive environmental receptors within a 500-foot radius of the Site. Two "Non Community Public Water Supply" are located approximately 1,300 feet west and southeast of the Site, respectively. A "DEP Permitted Solid Waste Facility" is located approximately 2,000 feet northeast of the Site. In addition, utility trenches in the area of the Site may act as conduits for, and may also be impacted by, subsurface contamination.

3.5 Geology (Literature Review)

According to the "United States Geological Survey (USGS) Bedrock Geologic Map of Massachusetts" (E-an Zen, 1983), the Site is underlain by a complex of medium grained hornblende diorite, metamorphosed in part to amphibolite and hornblende gneiss.

Surficial deposits at the Site, as characterized by the United States Department of Agriculture Soil Conservation Service for Norfolk County, consist of the Woodbridge fine sandy loam. The Woodbridge fine sandy loam is described as moderately well drained and gently sloping. The surface consists of a dark gray, fine sandy loam with a yellowish-brown, mottled, very fine sandy loam substratum.

4.0 Previous Work

The Site formerly consisted of one parcel of land having two buildings which were owned and occupied by Winchester Industries, Inc.: one building was the manufacturing and assembly facility, currently Cuming Corporation at 230 Bodwell Street; and the second building was the Winchester Industries, Inc. warehouse and office building, currently Conrad Corporation at 238 Bodwell Street. Winchester Industries, Inc. manufactured and assembled electric switches for U.S. Navy marine equipment. Previous work conducted at this property was documented in reports conducted by Kurz Associates, Inc. (KAI) dated May 6, 1988 and Gale Associates, Inc. dated July 1988, August 1988, and September 1991. KAI and Gale Associates, Inc. groundwater monitoring well locations are illustrated in Figure 2. Analytical data from the previous investigations is summarized for reference as Appendix C (Tab 3). The following is a summary of the KAI and Gale Associates, Inc. investigations:

The KAI investigation, entitled "M.G.L. 21E Assessment Report, Winchester Industries, Inc., 230 Bodwell Street, Avon" dated May 6, 1988, consisted of sampling of the septic tanks associated with Winchester Industries, Inc. manufacturing and assembly facility and the installation of three groundwater monitoring wells: KOW-1 and KOW-2 in the vicinity of Winchester Industries, Inc. manufacturing and assembly facility; and KOW-3 in the vicinity of Winchester Industries, Inc. warehouse and office facility. Groundwater was only present in KOW-2 and analysis from this monitoring well detected concentrations of trichloroethene and trans-1,2-dichloroethene, and background concentrations of xylenes and petroleum hydrocarbons. Further analyses identified elevated concentrations of trichloroethene in the primary and secondary septic tanks associated with Winchester Industries, Inc. manufacturing and assembly facility, currently Cuming Corporation. The septic tanks were pumped out and the primary septic tank was subsequently sampled for VOCs. Laboratory analysis detected reduced concentrations of chlorinated compounds in this sample.

The Gale Associates, Inc. investigation, entitled "Hazardous Waste Evaluation, 230 Bodwell Street, Avon" dated July 1988, consisted of additional monitoring and testing of the soil and groundwater at the Site. Three additional groundwater monitoring wells were installed: MW-2/B-4 in the vicinity of Winchester Industries, Inc. manufacturing and assembly facility; and MW-3/B-5 and MW-4/B-6 in the vicinity of the Winchester Industries, Inc. warehouse and office facility. Gale Associates, Inc. submitted several groundwater samples for various analysis. According to laboratory analysis, concentrations of trichloroethylene and metals were detected in KOW-2 (erroneously labeled KOW-1), and concentrations of chlorinated compounds were detected in an unspecified septic tank at the manufacturing and assembly facility.

A second investigation was conducted by Gale Associates, Inc. in August 1988, entitled "Hazardous Waste Evaluation Addendum, 230 Bodwell Street, Avon" This investigation was conducted to evaluate the extent of chlorinated solvent groundwater contamination. One bedrock well, designated MW-5/B-7, was installed on the south side of the septic tank/leaching field area associated with the manufacturing and assembly facility. This well was sampled and analyzed for VOCs and dissolved cadmium. According to laboratory analysis, no VOCs or dissolved cadmium were detected.

According to a report dated September, 1991 by Gale Associates, Inc. groundwater monitoring well KOW-2 (erroneously labeled KOW-1) was resampled in December 1988 and concentrations of 1,300 ppb trichloroethylene and 43 ppb of tetrachloroethane were detected. This groundwater monitoring well was sampled again in March 1989 and 520 ppb trichloroethylene was detected. Additional groundwater monitoring of KOW-2 detected no VOCs in five subsequent sampling rounds.

An additional Gale Associates, Inc. investigation was conducted in September 1991 at Cuming Corporation. This investigation consisted of sampling of groundwater monitoring wells KOW-2 (erroneously labeled KOW-1), MW-4, and MW-5. No VOCs were detected in the three groundwater monitoring wells.

5.0 SITE HISTORY

A limited Site history was determined by a review of information on file at the Avon Assessors' Office, Building Department, and a review of Sanborn Fire Insurance Maps, located at the Boston Public Library. In addition, discussions with personnel familiar with the Site including municipal officials were conducted with reference to Site history and the storage of oil or hazardous materials.

5.1 Documented History

The Avon Assessors' Office and Building Department were visited on February 6, 1995. Building Department records indicate that the Site was first developed in 1972 with the construction of the Winchester Industries, Inc. manufacturing and assembly facility (230 Bodwell Street). A second building (238 Bodwell Street) was constructed in 1979. At this time both buildings were owned and occupied by Winchester Industries, Inc. and designated as 230 Bodwell Street. According to the Assessors' Field Card, the Site was owned by Winchester Industries, Inc. until 1992. Since 1992, 230 Bodwell Street (Lot 1) has been owned by 230 Bodwell Corporation and 238 Bodwell Street (Lot 2) has been owned by Mr. Peter Runton. Available Building Department records are listed in the following table.

Table 1 - Building Records

Date	Building Permit Applicant	Records Information
January 14, 1972	Peter L. Runton	Application to build 100' x 100' building. Permit granted on January 20, 1972.
March 6, 1974	Winchester Industries	Application for an addition to the existing building. Permit granted on March 14, 1974.
June 28, 1977	Winchester Industries, Inc.	Application to extend building 100' x 50'
October 31, 1978	Winchester Industries, Inc.	Application to build a cement block and steel building to be used as an office, warehouse, and assembly plant. Building to be connected by a covered walkway to existing building.
December 21, 1978	Winchester Industries	Permit granted to construct a 118' x 118' building
November 26, 1991	Cuming Corporation	Application to build 3 cement block ovens and one cement block flammables storage room
March 9, 1992	Cuming Corporation	Application to dig an 8' square by 13' deep pit in the floor at the rear of the building to house a 1,000-gallon water tank to be installed for product testing. Application approved and permit granted on March 12, 1992.

5.2 Site Interviews

Mr. Peter Runton (Site Owner)

Mr. Peter Runton, owner of the Site, was interviewed during this investigation for Site historical information and information regarding any releases of oil or hazardous materials at the Site. According to Mr. Runton, the Site had been undeveloped prior to the construction of the current Site building in 1979. In 1979, the Site was owned and occupied by Winchester Industries, Inc., a manufacturer of electric switches. A ramp connecting the two Site buildings was reportedly utilized for transporting finished materials from the manufacturing and assembly facility (230 Bodwell Street) to the storage and office facility (238 Bodwell Street). Mr. Runton purchased 238 Bodwell Street in 1992 and the covered ramp was dismantled. The building at 238 Bodwell Street was then occupied by Classic Designs, Inc., an automobile sunroof and styling business. Since 1993, 238 Bodwell Street has been occupied by Conrad Corporation, a manufacturer of wooden office fixtures. Mr. Runton was not aware of any releases of oil or hazardous materials at the Site. According to Mr. Runton, Winchester Industries, Inc. did not store or assemble any PCB-containing electrical equipment.

Mr. John Cuming (Cuming Corporation, Business Manager)

Mr. John Cuming was interviewed during this investigation for historical information and information regarding any releases of oil or hazardous materials at Cuming Corporation. He stated that Cuming Corporation has occupied the building at 230 Bodwell Street since 1992. Cuming Corporation is a manufacturer of syntactic foam flotation modules, and radar reflective and absorption devices. According to Mr. Cuming, hazardous materials used in manufacturing include: epoxy resin, anhydride, liquid carbon, boric acid powder, urea powder, and various adhesives. Mr. Cuming was not aware of any releases of oil or hazardous materials at Cuming Corporation.

Mr. Roger Bastow (Cuming Corporation, Foreman)

Mr. Roger Bastow, Foreman of Cuming Corporation, was interviewed during this investigation for information regarding any releases of oil or hazardous materials. Mr. Bastow was not aware of any releases of oil or hazardous materials at the Site or any properties in the vicinity of the Site.

5.3 Aerial Photographs

The Avon Town Hall was visited to review historical aerial photographs of the Site and properties in the vicinity of the Site. No aerial photographs were available for review in the municipal records.

An aerial photograph dated March 27, 1990 was obtained from Col-East, Inc. This photograph depicted both Site buildings connected by a covered ramp. No change in usage

of the Site or properties in the vicinity was noted. This aerial photograph is provided for reference as Appendix B (Tab 2).

5.4 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps for the Town of Avon were reviewed on February 15, 1995 to further document Site history and to determine if there was evidence that oil or hazardous materials had been historically used or stored on or in the vicinity of the Site. The Sanborn Maps did not specifically address the vicinity of the Site due to late development and/or low population of the area.

6.0 AGENCY REVIEW

6.1 Local Agency Review

The Avon Town Clerk's Office, Fire Department, Health Department, and Conservation Commission were visited and/or contacted to obtain pertinent information regarding the Site and vicinity of the Site.

Avon Town Clerk's Office - February 6, 1995

According to a review of the Town Clerk's Office underground storage tank (UST) and aboveground storage tank (AST) records, a license for aboveground storage of 3,200 gallons of various unspecified materials was on record for 230 Bodwell Street. Aboveground storage of 500 gallons of an unspecified material was on record for 238 Bodwell Street. Aboveground storage licenses for the Site and properties located within a 0.5-mile radius of the Site are listed in the following table.

Table 2 - Aboveground Storage of Oil and Hazardous Materials

Facility	Address/ Orientation	Capacity and Contents	Comments
Classic Design	Site	500 Gallons Unknown	License updated 1995
Cuming Corporation	Site	3,200 Gallons Various	License updated 1995
Roadway Express	215 Bodwell Street 200 Feet Southeast	30,000-Gal. Total Diesel and Gasoline AST	License updated 1995
Giltspur	275 Bodwell Street 500 Feet North	2,000-Gal. Thinner AST	License updated 1995
Champion/Fitwell	264 Bodwell Street 600 Feet Northwest	4,000-Gal. Propane	License updated 1995
J.H. Westerbeke	41 Ledin Drive 650 Feet Southwest	1,000-Gal. Unknown AST	License updated 1995

Avon Fire Department - February 10, 1995

A review of UST files was conducted by Chief Macomber of the Avon Fire Department. According to Chief Macomber, no USTs have been installed at the Site or adjacent properties. Mr. Macomber was not aware of any releases of oil or hazardous materials at the Site or adjacent properties. USTs at properties within a 0.5-mile radius of the Site are listed in the following table:

Table 3 - Bulk Underground Storage of Oil and Hazardous Materials

Facility	Address/ Orientation	Tank Capacity and Contents	Comments
Colonial Trucking	235 Bodwell Street 50 Feet Northeast	(2) 12,000-Gal. Diesel 12,000-Gal. Gasoline 5,000-Gal. Fuel Oil	Installed 1974 / Removed 1993 Installed 1974 / Removed 1993 Removed 1993
Parker Transportation	21 Parker Drive 200 Feet Northeast	(2) 10,000-Gal. Diesel 5,000-Gal. Fuel Oil	Installed 1989 Installed 1989
Krohn-Hite	255 Bodwell Street 200 Feet North	5,000-Gal. Fuel Oil	Removed 1993
Roadway Express	215 Bodwell Street 250 Feet Southeast	10,000-Gal. Gasoline 20,000-Gal. Diesel	Both USTs removed in 1993 and replaced with ASTs.
Redemco	40 Ledin Drive 600 Feet Southwest	10,000-Gal. Diesel	Installed 1979, tested tight in 1995.

Avon Health Department - February 6, 1995

According to Mr. Barry Perkins, Civil Engineer and Registered Sanitarian for Avon, the Site is located in a Flood Plain Protection District. Mr. Perkins stated that no public or private water supply wells are located within a 500-foot radius of the Site. He was not aware of any releases of oil or hazardous materials on or in the vicinity of the Site, and knew of no other environmentally sensitive receptors in the vicinity of the Site.

Avon Conservation Commission - February 14, 1995

Mr. Eugene Guilbaut, Conservation Commission Chairman, confirmed that a drainage easement for Bodwell Brook is located in the rear portion of the Site. He stated that wetlands associated with Bodwell Brook are located several hundred feet south of the Site. Mr. Guilbaut was not aware of any releases of oil or hazardous materials on or within the vicinity of the Site.

6.2 State Agency Review

Information contained in the Spills, Release Tracking Number (RTN), and Sites Databases and available General Files at the Southeast Regional Office (SERO) of the DEP in Lakeville, Massachusetts was reviewed on February 14, 1995, concerning past releases of oil or hazardous materials which may have occurred on the Site or within a 0.5-mile radius of the Site. As a result of the review of related files, it was determined that the Site is a DEP-listed property. Two additional DEP-listed properties and several spills were located within a 0.5-mile radius of the Site. The available data on these spills are summarized below.

DEP-SERO and Spills and RTN Databases

The DEP-SERO Spills and RTN Databases document spills, releases, improper storage and related incidents involving oil or hazardous materials in the Southeast Region. The following information was obtained from the Spills and RTN Databases.

- January 24, 1986 (Spill No. SE86-0033): An unknown quantity of separate-phase diesel fuel was reported on the groundwater surface following a UST removal at Knickerbocker Dispatch, located approximately 100 feet northeast of the Site. According to the Spill report, all of the oil-contaminated soil appeared to have been removed. According to the Spill report, the release was due to a leaking UST check valve. No additional information was available regarding this incident.

- October 16, 1986 (Spill No. SE86-0597): An unknown quantity of oil was discovered on the groundwater surface in a trench, located at Westerbeke Corporation, 41 Ledin Drive, approximately 650 feet southwest of the Site. No additional information was available regarding this incident.

- November 11, 1986 (Spill No. SE86-0596): Approximately 30 gallons of diesel fuel were released onto the ground at Roadway Express, located approximately 200 feet southeast of the Site. The release reportedly occurred during fueling. Jetline, Inc. responded for emergency cleanup operations. No additional information was available regarding this incident.

- September 7, 1988 (Spill No. SE88-0605): An anonymous caller reported that diesel fuel was being released from vehicle fuel tanks to the soil at Trans Star Trucking, located approximately 50 feet northeast of the Site. According to the Spill report, water was mixing with diesel fuel due to faulty pumps. Subsequent to filling the vehicles, the drivers would drain the water off and dump along a 25 by 30-foot area along the perimeter of the property. No additional information was available regarding this incident.

- August 5, 1988 (Spill No. Boston): Approximately three gallons of an unknown chemical were released onto the ground and inside a trailer located at an unspecified address on Bodwell Street. Employees of this location experienced nausea and a burning sensation. The Avon Fire Department and Jetline Services responded to the incident. No additional information was available regarding this incident.

- August 5, 1989 (Spill No. S89-0533): Five 1-gallon pails containing fiberglass resin and methyl ethyl ketone were knocked over in a truck trailer located at Roadway Express, Inc., approximately 200 feet southeast of the Site. These two substances combined to form a toxic gas and five people were subsequently taken to the hospital. Jetline responded to the incident to cleanup the release. No additional information was available regarding this incident.

- March 7, 1990 (Spill No. S90-0151): Approximately 50 gallons of diesel fuel were released during fueling at Roadway Express. According to the Spill report, the release was immediately contained and cleaned up by Roadway personnel. No additional information was available regarding this incident.

- March 29, 1990 (Spill No. S90-0407): Approximately 20 gallons of methylene chloride were released at Roadway Express due to a tank rupture during drum transfer from an overroad truck to a city delivery truck. The release was contained with Speedi-dry. No drains, waterways, or soil were reportedly impacted by this incident. Remedial actions were completed and no further action was required.

- July 5, 1990 (Spill No. S90-0495): Approximately 40 gallons of motor oil were released inside a trailer at Roadway Express. Cyn Oil responded and cleaned up the release with absorbent materials. No additional information was available regarding this incident.

- January 2, 1991 (Spill No. S90-0919): Approximately 280 gallons of diesel fuel were released during fueling at Roadway Express. The release reportedly impacted the asphalt. Jetline Services responded for emergency cleanup operations. No additional information was available regarding this incident.

- August 21, 1991 (Spill No. S91-0507): Approximately 75 gallons of diesel fuel were released to asphalt during fueling at Roadway Express. Jetline Services responded for cleanup operations. No additional information was available regarding this incident.

- October 4, 1992 (Spill No. S92-0739): Approximately 40 gallons of hydraulic oil were released at Roadway Express. The release reportedly discharged onto an asphalt surface and was contained by the driver. The Avon DPW responded to the release for cleanup. No additional information was available regarding this incident.

- December 22, 1992 (Spill No. S92-0943): Less than 10 gallons of diesel fuel were released at Roadway Express. According to the Spill report, this release occurred on soil and was minor in nature. No additional information was available regarding this incident.

- April 7, 1993 (Spill No. S93-0235): An unknown quantity of sulfuric acid, lime, and oxalic acid were released at Roadway Express. According to the Spill report, a parked tractor trailer containing a total of 1,000 gallons of these materials was leaking liquid. Cyn Oil responded and cleaned up the release. No additional information was available regarding this incident.

- May 18, 1993 (Spill No. S93-0322): Soil contamination was encountered during the removal of a 20,000-gallon and a 10,000-gallon UST at Roadway Express. Approximately 500 cubic yards of contaminated soil were subsequently removed from this property. Groundwater monitoring wells installed at this property reportedly contained VOCs below drinking water standards. No additional information was available regarding this incident.

- August 4, 1993 (Spill No. S93-0520): Soil contamination was encountered during a UST removal at Krohn-Hite, located approximately 200 feet north of the Site. According to the Spill report, Cyn Oil removed a 5,000-gallon No. 2 fuel oil UST and recorded HNu readings up to 200 ppm. No groundwater was encountered in the UST excavation. Approximately 180 tons of contaminated soil was removed from the excavation. No additional information was available regarding this incident.

DEP List of Confirmed Disposal Sites, Locations To Be Investigated, and Transition Sites

The 1993 Transition List of Confirmed Disposal Sites and Locations To Be Investigated and the 1995 List of Tier Classified Sites were reviewed for properties located within a 0.5-mile radius of the Site. Properties listed in the Transition List are disposal sites listed with the DEP prior to October 1, 1993. By definition, Confirmed Disposal Sites are locations where releases of oil or hazardous materials have been confirmed by the DEP and that require further action. LTBIs are locations that the DEP considers reasonably likely to be disposal sites, but are as yet unconfirmed. Tier Classified Sites are disposal sites which have been assigned Tier I or Tier II status through the DEP Numerical Ranking System since October 1, 1993.

From this review it was determined that the Site and two properties located within a 0.5-mile radius of the Site are listed in the 1995 Transition List of Confirmed Disposal Sites and Locations To Be Investigated. Available information concerning the Site is summarized in Section 6.2, Federal Agency Review. The following is a summary of available information regarding the two listed properties located within a 0.5-mile radius of the Site.

Knickerbocker Dispatch, 235 Bodwell Street - This property, located approximately 100 feet northeast of the Site, is listed as LTBI Site No. 4-0283. According to a report prepared by Haley and Aldrich, Inc. dated June 1986, a release of diesel fuel occurred at this property due to a leaking UST check valve. Corrective actions included the removal and disposal of approximately 140 tons of contaminated soil and 640 gallons of contaminated water. Haley and Aldrich, Inc. concluded that existing levels of contaminants in-situ will pose little threat to public health or environment and no further action is recommended. Groundwater at this property was determined by Haley and Aldrich to flow towards the east, away from the Site.

Krohn-Hite, 255 Bodwell Street - This property, located approximately 200 northeast of the Site, is listed as DEP Unlisted Site No. 4-9006 and 4-10381. According to a report conducted by Gale Associates, Inc. dated January 1995, fuel oil contaminated soils were discovered during the removal of a 5,000-gallon No. 2 fuel oil UST. Approximately 100 cubic yards of oil-contaminated soil were excavated from the property. Five groundwater monitoring wells were installed at this property. According to laboratory analysis, concentrations of benzene exceeded current groundwater standards at this property. Gale Associates, Inc. recommended groundwater resampling at this property. Groundwater flow was determined by Gale Associates, Inc. to flow in a west-northwesterly direction, away from the Site.

DEP Water Supply Protection Atlas

The Water Supply Protection Atlas (1982) prepared by the DEP Office of Planning and Program Management including the Water Sources, Waste Sources, Aquifer Information, and Drainage Basin Overlays for the Blue Hills quadrangle was reviewed as it relates to the Site. Information from these sources is as follows:

Water Sources: There are no identified water sources located within a 0.5-mile radius of the Site.

Waste Sources: There are no identified waste sources located within a 0.5-mile radius of the Site.

Aquifer Information: The Site is located within an LL_1 aquifer, which indicates the Site is within an area of glacial till and bedrock.

Drainage Basin: The Site is located within the Taunton River Drainage Basin Subbasin 1.

6.3 Federal Agency Review

The EPA Region I NPL, CERCLIS, and RCRA TSD List were reviewed for the Site and properties within a 1.0-mile radius of the Site. The ERNS, SETS, EPA FINDS, and RCRIS Databases were reviewed for the Site and properties located within a 0.5-mile radius of the Site. The Federal Database Search is summarized in Table 4. Additional information regarding any listed property located within the applicable search radius is provided following Table 4.

Table 4 - Federal Database Search

Database	Facility	Address/ Approximate Location	EPA ID No.
CERCLIS	Winchester Industries, Inc.	Site	MAD985278670
NPL	No Facilities Located	NA	NA
RCRA TSD	No Facilities Located	NA	NA
ERNS	Roadway Express Company	215 Bodwell Street 200 Feet Northeast	ERNS No. H9118
SETS	Parker's Express	Parker Drive 200 Feet Northeast	NA
SETS	Krohn-Hite	Bodwell Street 200 Feet North	NA
RCRIS AFS	Winchester Industries, Inc.	Site	MAD002578417
RCRIS	Highway Motor Dispatch	235 Bodwell Street 50 Feet Northeast	MAD981895998
RCRIS	Parkers Express, Inc.	21 Parker Drive 200 Feet Northeast	MAD079522553
RCRIS	Roadway Express	215 Bodwell Street 200 Feet Northeast	MAD076608496

RCRIS	Krohn-Hite Corporation	Bodwell Street 200 Feet North	MAD019299544
RCRIS TRIS AFS	Giltspur	275 Bodwell Street 500 Feet North	MAD981065139
RCRIS	Thorson Steel Products	244 Bodwell Street 600 Feet Southeast	MAD001055897
RCRIS AFS	Westerbeke, JH Corp	41 Ledin Drive 650 Feet Southwest	MAD985268358
RCRIS	Mailhouse, Inc.	180 Bodwell Street 1,000 Feet Southeast	MAD985266733

Notes: NA = Not Applicable
AFS = Airs Facility System
TRIS = Toxic Release Inventory System

A review of the CERCLA file for Winchester Industries, Inc. was conducted at the EPA Records Center in Boston, Massachusetts on February 13, 1995. Information from the CERCLA file is summarized in Section 4.0, Previous Work. Additional information regarding the ERNS-listed property and the SETS-listed property, identified within a 0.5-mile radius of the Site, is provided below:

Roadway Express Company, located approximately 200 feet northeast of the Site, is listed as ERNS No. H9118 due to a 5-gallon release of methyl ethyl ketone on August 5, 1989. No additional information was available in the ERNS database. This incident is listed as a Spill with the DEP, and is summarized in Section 6.2, State Agency Review.

Krohn-Hite and Parker's Express, Inc., located 200 feet north and northeast of the Site, respectively, are listed in the SETS database. Facilities listed in this database are parties with financial responsibility for remediation of uncontrolled hazardous waste sites. No additional information was available in the SETS database.

A review of available RCRA files was conducted at DEP-SERO on February 14, 1995. The following is a summary of pertinent information in available RCRA files:

Winchester Industries, Inc., Bodwell Street (Site) - This property once occupied both Site buildings; however, the following information is related only to the Winchester Industries, Inc. manufacturing and assembly facility (230 Bodwell Street). According to a letter from the DEP to Winchester Industries, Inc. dated February 18, 1981, the subject industry is involved in the cleaning of metals by a bright dip process and the wastewater from the bright dip process is treated to remove the residual chromium and copper. Winchester Industries, Inc. proposed to utilize an automatic treatment system in which industrial wastewater effluent is discharged to an existing subsurface sewage disposal system, adjacent to the industrial building. The subject disposal system also handles the sanitary

sewage from the personnel working in the factory section of the facility and a separate disposal system is used to handle the sanitary sewage from the office building. The sludge produced from the current treatment process will continue to be drummed and transported to an approved facility. The DEP stated that the existing and proposed method of treatment and disposal is appropriate and hereby approves the same.

A report for Winchester Industries, Inc. entitled "Description of Operation" dated January 27, 1983 was also reviewed. According to this report, the manufacturing and assembly facility used a "Chrome Reduction Unit" which produced metal hydroxide sludge and reusable water from several separate waste streams. In addition, this facility also used trichloroethylene for degreasing. Several Notices of Violation regarding inadequate labeling and storage of drums containing hazardous waste were issued for the Winchester Industries, Inc. manufacturing and assembly facility.

Krohn-Hite, 255 Bodwell Street - This property is located approximately 200 feet southeast of the Site. An inspection report dated December 3, 1985 was reviewed in the RCRA file for this property. According to the inspection report, Krohn-Hite is a manufacturer of electrical equipment and circuit boards. Krohn-Hite had previously used trichloroethane to clean the assembled circuit boards and were then using water soluble soldering flux and a dishwasher for cleaning, which discharges to a septic system.

Westerbeke Corporation, 41 Ledin Drive - This property, located approximately 650 feet southwest of the Site, was issued a "Notice of Noncompliance" dated December 17, 1993. According to the Notice of Noncompliance, Westerbeke Corporation was cited for not having any containment around a outdoor waste oil accumulation tank and discharging wash water to the leaching field. Corrective actions performed as a result of this notice included the construction of a containment system for the outdoor waste oil accumulation tank, sealing all of the floor drains, and installing an evaporator for the washwater discharge.

7.0 FIELD INVESTIGATION

The purpose of the limited subsurface investigation program was to obtain qualitative and quantitative environmental data on soil and groundwater conditions at the Site. As such, the field investigation consisted of surficial observations, test borings, headspace screening of soil boring samples, installation of groundwater monitoring wells, soil and groundwater sampling, and laboratory analysis of soil and groundwater. A Site-Specific Health and Safety Plan was prepared for field personnel, and is included for reference in Appendix D (Tab 4).

7.1 Surficial Investigation

7.11 Cuming Corporation - 230 Bodwell Street

A surficial field investigation of Cuming Corporation, located at 230 Bodwell Street, was conducted by Derek C. Volkin of CONECO on March 29, 1995. Weather conditions on this day were sunny with temperatures in the 50s, Fahrenheit. The Site was traversed on foot to identify any significant evidence of storage, leakage or spillage of oil or hazardous materials.

The 238 Bodwell Street portion of the Site contains a single-story 15,240 square-foot office and manufacturing building situated on a rectangular-shaped parcel totaling approximately 0.98 acres. This building is occupied by Cuming Corporation, a manufacturer of syntactic foam flotation modules, radar reflective and absorption devices. Exterior portions of 230 Bodwell Street include a paved driveway, gravel parking and storage area, a concrete platform, and landscaped areas. The following is a description of interior and exterior portion of the 230 Bodwell Street portion of the Site.

Interior

Office Area

The eastern (front) portion of the Site is used as office space. Two rest rooms can be entered from the central office area. Drains in the restroom reportedly discharge to the septic tank in the front portion of this Site building. No storage or usage of oil or hazardous materials was observed in the office area.

Manufacturing Area

Remaining portions of the interior consist of the following areas: a machine shop; a syntactic foam flotation module manufacturing area; a radar deflecting and absorption material manufacturing area; a hazardous materials storage vault; and a mezzanine area. One sink was located in the machine shop area, along the southeastern exterior wall of this building. The sink reportedly discharges to the septic system and leaching field located in the front portion of this building. According to Mr. Cuming and Mr. Bastow, there are no floor drains within the building. Several ceiling-mounted heater/air conditioner blower units were observed throughout the manufacturing area.

The machine shop is located in the eastern portion of this building. Various cutting machinery, three unlabeled 5-gallon metal pails of liquid, and a sink were observed in this area. This sink is reportedly used for hand cleansing. The sink discharges to the on-Site septic system.

The syntactic foam flotation module manufacturing area occupies in the majority of this facility. A large tumbler, two ovens, a pressure testing tank, and various dry materials storage were observed in this area. Minor surficial staining was observed on the concrete

floor within the ovens. No evidence of a significant release of oil or hazardous materials was observed in the flotation module manufacturing area.

The radar deflection materials manufacturing area is located along the exterior wall of the southeastern portion of this building. Various small machinery and ten unlabeled 5-gallon metal pails of unknown liquid were observed in this area. A small room in this area was inaccessible at the time of the inspection. No evidence of a release of oil or hazardous materials was observed in the radar deflection materials manufacturing area.

The radar absorption materials manufacturing area is located in the rear portion of this building. This area consists of a press, a spray booth, foam storage, approximately forty 50-gallon barrels of liquid carbon, two pallets of boric acid powder, and one pallet of urea powder. Heavy carbon staining was observed on the concrete floor. No cracks or partitions were observed on the concrete floor in this area.

The hazardous materials storage room is located in the northern portion of this building. This room contained the following materials: 15 drums of anhydride; 20 drums of epoxy resin; and seven 10-gallon pails of adhesives. No evidence of a release of oil or hazardous materials was observed in the hazardous materials storage room. No cracks or partitions were observed on the concrete floor in this room.

The mezzanine area consists of a testing area for radar absorption materials, an office, and bathroom area. The testing area consists of a foam-padded room and various electronic equipment. A sink, which reportedly discharges to the septic system, was observed in the bathroom area. This sink is reportedly used for hand cleansing. No evidence of a release of oil or hazardous materials was observed in the mezzanine area.

Exterior

The exterior portions of 230 Bodwell Street consist of a paved parking area and loading dock area in the front and a gravel loading and storage area and concrete platform in the rear. Landscaped areas, two septic tanks, and associated leaching fields are located in the front portion the Cuming Corporation building. Additional landscaped areas are located in the northern portion of this parcel.

The paved parking lot slopes downward towards a loading dock. Four empty 55-gallon drums of epoxy resin were observed in this area. No evidence of a release of oil or hazardous materials was observed.

The gravel loading and storage area was observed to consist of over 50 empty drums, various solid waste, storage areas for testing vessels and finished flotation modules, a trailer for foam storage, a forklift, a concrete platform, and a dumpster. According to Mr. Roger Bastow of Cuming Corporation, the 55-gallon drums are transported off-Site by a licensed contractor on a regular basis. The Bodwell Brook Drainage Easement is located in this area, approximately

35 feet east of the building. No evidence of a release of oil or hazardous materials was observed in the dumpster or rear portion of 230 Bodwell Street.

The concrete platform contained various equipment storage and three 55-gallon drums containing waste oil and two unlabeled 55-gallon drums of unknown material located against the Site building. No evidence of a release of oil or hazardous materials was observed on the concrete platform. In addition, three pole-mounted transformers are located in the northern portion of the Site. No labeling as to PCB content was observed on the transformers. No evidence of a release of transformer dielectric fluid was observed.

A visual reconnaissance of proximal properties located adjacent to the Site was also conducted. Proximal properties were noted to be industrial and commercial in nature. No evidence of a release of oil or hazardous materials was observed on the proximal properties during this visual reconnaissance.

7.12 Conrad Corporation - 238 Bodwell Street

A surficial field investigation of Conrad Corporation - 238 Bodwell Street was conducted by Derek C. Volkin of CONECO on February 6, 1995. Weather conditions on this day were sunny with temperatures ranging from 0-5 degrees, Fahrenheit. The Site was traversed on foot to identify any significant evidence of storage, leakage or spillage of oil or hazardous materials.

The 238 Bodwell Street portion of the Site contains a single-story 16,800 square-foot office and warehouse building situated on a rectangular-shaped parcel totaling approximately 1.38 acres. This building is occupied by Conrad Corporation, a manufacturer of wooden store fixtures. Exterior portions of 238 Bodwell Street include a paved driveway, gravel parking area, and landscaped areas. The following is a description of interior and exterior portions of 238 Bodwell Street.

Interior

Office Area

The eastern (front) portion of the Site consists of an office area, subdivided into a small lobby, a secretaries office, four offices, a central office area, a meeting room, and a storage room. The storage room was used for maintenance of files and various office supplies. Two rest rooms can be entered from the central office area or from the warehouse area. No floor drains were observed in the rest rooms. No storage or usage of oil or hazardous materials was observed in the office area.

Manufacturing Area

Remaining portions of the interior are used for manufacturing purposes. Manufacturing areas consist of a machine shop, a drying room, and a mezzanine. No floor drains were observed in the manufacturing area.

The machine shop occupies the majority of the manufacturing area and contains several band saws, planers, table saws, a panel saw, a hydraulic press, work benches, a spray booth, and a flammable liquid storage cabinet. A 55-gallon drum containing "Cam-Bond" adhesives and the flammable liquid storage cabinet were noted beside the spray booth. The cabinet contained a 55-gallon drum of contact cement and a 55-gallon drum of solvents. Storage of lumber and raw materials were observed in the northwestern portion and finished products were observed in the southeastern portion of the manufacturing area. Several ceiling mounted heater/air conditioner blower units were observed throughout this area. Two floor-mounted transformers are located along the southern wall of the building. No PCB content labeling was observed on the transformers. No evidence of a release of transformer dielectric fluid was observed on the floor in the vicinity of the transformers. No evidence of a release of oil or hazardous materials was observed in the manufacturing area.

The drying room is located in the northern portion of the Site building, adjacent to the central office area. The drying room consists of a paint booth, a work area, and a metal cabinet containing a 55-gallon drum for excess thinners and paints, one empty 55-gallon drum and several empty 10-gallon metal cans of thinner and paint. A second metal cabinet was observed to contain several empty 10-gallon plastic containers of lacquer and thinner. No floor drains and no evidence of a release of oil or hazardous materials were observed in the drying room.

The mezzanine area is located in the eastern portion of the manufacturing area. The mezzanine consists of two rooms containing lumber storage and one room containing an air conditioning unit, a gas-fired furnace, and two air compressors. No evidence of a release of oil or hazardous materials was observed in the mezzanine area.

Exterior

The exterior portion of 238 Bodwell Street consists of a paved driveway, loading dock area, and a gravel parking area located in the rear portion of the Site. Landscaped areas are located along the periphery of the Site building and the front portion of the Site. Two septic tanks and associated leaching field are also located in the front portion of 238 Bodwell Street. Remaining portions of the Site are undeveloped.

The rear portion of this parcel consists of a paved and gravel parking area with the remaining area undeveloped. A paved driveway extends along the northern portion of this parcel to three loading docks located in the rear portion of the building. The Bodwell Brook Drainage Easement, which contains the Bodwell Brook culvert, is located approximately 50 feet east of the building. An empty 55-gallon drum and an abandoned air conditioner unit were noted in the southern corner of the rear portion of the Site. No evidence of a release of oil or hazardous materials was observed along the paved driveway or rear portions of the Site.

The southern boundary of 238 Bodwell Street contains approximately 10 feet of concrete platform and approximately 15 feet of ramp which slopes downward toward this portion of the Site. This area is connected to and utilized by Cuming Corporation. At the time of the

inspection, various equipment and a wooden tub containing ice were observed on the concrete platform. No evidence of a release of oil or hazardous materials was observed on the southern boundary of 238 Bodwell Street.

A visual reconnaissance of proximal properties located adjacent to 238 Bodwell Street was also conducted. Proximal properties were noted to be industrial in nature. It was noted that Cuming Corporation stores the following materials within 10 feet of the southern (rear) Site boundary: several empty 55-gallon drums of epoxy resin beneath a trailer, finished products, and several empty testing vessels. According to Mr. Bastow of Cuming Corporation, the 55-gallon drums are transported off-Site by a licensed contractor on a regular basis. In addition, it was noted that three pole-mounted transformers are located on two utility poles within 10 feet of the northern Site boundary. No PCB content labeling was observed on the transformers. No evidence of a release of oil or hazardous materials was observed on the proximal properties during this visual reconnaissance.

7.2 Test Borings

Test boring activities were conducted on March 17, 1995 by Soil Exploration of Leominster, Massachusetts, and were overseen by Derek C. Volkin of CONECO. Eight test borings were advanced to depths of approximately 3 to 8 feet below grade utilizing a Acker ADII rotary drill rig. Continuous sampling of overburden materials was performed using a split-barrel sampler. The Standard Operating Procedures for Overburden Test Borings are included in Appendix E (Tab 5). The rationale for the positioning of the test borings/monitoring wells around the Site is as follows:

Boring B-8/ CMW-1: Boring B-8 was advanced at 238 Bodwell Street, along the southwestern boundary of the property, approximately 10 feet topographically downgradient from the empty drum storage area at 230 Bodwell Street. This test boring location was intended to provide information regarding subsurface conditions downgradient from the 230 Bodwell Street property.

Boring B-9/ CMW-2: Boring B-9 was advanced at 230 Bodwell Street, in the southwestern (rear) portion, approximately 5 feet from an empty drum storage area and topographically downgradient from existing groundwater monitoring well KOW-2. This test boring location was intended to provide information regarding subsurface conditions downgradient of this referenced monitoring well.

Boring B-10 Boring B-10 was advanced at 230 Bodwell Street, approximately 10 feet from monitoring well MW-5, south of the leaching field, in the front portion of this property. This test boring was intended to

provide additional subsurface information regarding conditions downgradient from the southern septic tank.

Boring B-11: Boring B-11 was advanced at 230 Bodwell Street, approximately 20 feet north of monitoring well KOW-2, in the rear portion of this property. This test boring location was intended to provide subsurface information regarding the area upgradient from monitoring KOW-2.

Boring B-12/ CMW-3: Boring B-12 was advanced at 230 Bodwell Street, approximately 10 feet topographically upgradient from monitoring well KOW-2, in the rear portion of this property. This test boring location was intended to provide information regarding subsurface conditions between KOW-2 and the building at 230 Bodwell Street.

Boring B-13: Boring B-13 was advanced at 230 Bodwell Street, topographically downgradient of the building's leaching field. This test boring location was intended to provide information regarding subsurface conditions in the vicinity of the septic tank and leaching field.

Boring B-14: Boring B-14 was advanced at 230 Bodwell Street, approximately 30 feet north of and topographically downgradient from the leaching field. This test boring location was intended to provide information regarding subsurface conditions in the vicinity of the septic tank and leaching field.

Boring B-15/ CMW-4: Boring B-15 was advanced at 230 Bodwell Street, approximately 5 feet from the boundary of 238 Bodwell Street. This test boring location was intended to provide subsurface information regarding soil and groundwater conditions in the central portion of the Site.

Observations made during the performance of test borings indicated fill materials extending from grade to depths of 2 to 5 feet below grade, underlain by glacial till. Bedrock was encountered during the performance of test borings at depths of 2.5 to 6 feet below grade. Complete Test Boring Reports can be referenced in Appendix F (Tab 6). From grade to the vertical extent of the test borings, soil units encountered are described as follows:

- Fill deposits composed of variable soils with a relatively wide grain size distribution were noted immediately below grade in the eight test borings performed on the Site. Soils observed consisted of a dark gray, fine to coarse sand, silt, and fine to coarse gravel. Cobbles were noted within the fill matrix. The vertical extent of the fill ranged from grade to approximately 2 to 5 feet below grade.

- The glacial till consists of brown gravelly silty sand and gravelly sandy silt. The vertical extent of the till ranged from 2 to 5 feet below grade to bedrock at 2.5 to 6 feet below grade.

- Bedrock was encountered at depths ranging from 2.5 to 6 feet below grade and was observed to consist of a hornblende diorite.

7.3 Soil Boring Screening

Representative soil samples collected from the test borings were placed in clean, tightly sealed glass jars with aluminum foil cover liners for in-field screening using an HNu Model HW-101 PID. A discussion of this procedure and standard operating protocol is included in Appendix E (Tab 5). Headspace procedures were performed in accordance with DEP Policy WSC 94-400. PID concentrations can be referenced in the following table.

Table 5 - PID Screening Results

Test Boring	Sample No.	Depth (feet)	PID Reading (ppm)
B-8	S-1	0-2	ND
	S-2	2-4	ND
	S-3	4-6	0.8
	S-4	6-8	ND
B-9	S-1	0-2	ND
	S-2	2-4	ND
	S-3	4-6	ND

Table 5 - PID Screening Results (Cont.)

Test Boring	Sample No.	Depth (feet)	PID Reading (ppm)
B-10	S-1	0-1.5	ND
B-11	S-1	0-2	ND
	S-2	2-4	ND
	S-3	4-5	ND
B-12	S-1	0-2	ND
	S-2	2-4	ND
	S-3	4-5	ND
B-13	S-1	0-2	ND
	S-2	2-4	ND
B-14	S-1	0-2	ND
	S-2	2-3	ND

B-15	S-1	0-2	ND
	S-2	2-4	ND
	S-3	4-5	ND

Note: * ND = Below PID screening detection limit of 0.2 ppm

7.4 Soil Sampling

Based on PID concentrations, select soil samples were placed in clean 4-ounce glass jars for VOC analysis by EPA Method 8240 and TPH analysis by EPA Method 418.1. Soil samples from test borings B-8, B-9, B-10, B-12, B-13, and B-15 were submitted for laboratory analysis.

Samples were chosen for laboratory analysis by one of two criteria: the sample with highest PID level from each test boring was chosen, if sufficient soil was available for analysis, or if all PID concentrations were non detectable, soil samples were chosen from a depth corresponding to the vadose zone. Samples were labeled based upon test boring number, sample number, and depth below grade, and as such, were designated B-8/S-3 (4-6'), B-9/S-3 (4-6'), B-10/S-1 (0-1.5'), B-12/S-3 (2-4'), B-13/S-2 (2-4'), and B-15/S-3 (4-5'). All samples were delivered by courier to National Environmental Testing, Inc. of Bedford, Massachusetts, a Massachusetts-certified analytical laboratory, on March 21, 1995.

7.5 Groundwater Monitoring Well Installation

Groundwater monitoring wells CMW-1 through CMW-4 were installed in test borings B-8, B-9, B-12, and B-15, respectively. The monitoring wells were constructed of 2-inch ID, schedule 40, No. 10 slotted PVC well screen from the base of the well to approximately 2 feet below grade, with solid PVC riser pipe from the top of the slotted screen to grade. A discussion of the monitoring well installation procedure is included in Appendix E (Tab 5). A schematic description of the well installation is included in the boring logs in Appendix F (Tab 6).

The four groundwater monitoring wells installed as part of this investigation were developed on the day of installation and six days following installation. Monitoring well development was accomplished through repeated bailing until a minimum of three well volumes were removed and stabilization of suspended fines was noted. Clean PVC bailers were used in the development of each well.

7.6 Site Survey/Gauging of Groundwater Levels

A Site survey was conducted by CONECO personnel on March 29, 1995. The survey was performed to locate on-Site monitoring wells and other significant Site features. A reference elevation for each monitoring well was established at a specific point on the top of the PVC well casing. The datum used for this survey was a benchmark assigned an arbitrary elevation of 100.00 feet, located at the top of a concrete step at Conrad Corporation, adjacent to the southern portion of this building.

Depth to groundwater measurements to the nearest 0.01 foot were made at each groundwater monitoring well by CONECO personnel on March 23, 1995. The depth to groundwater was measured using an ORS Interface Probe from the reference point located at the top of the PVC well casing.

The tabulated data for the monitoring wells including groundwater elevations as measured on March 23, 1995 is as follows:

Table 6 - Tabulation of Monitoring Well Data - March 23, 1995

Monitoring Well	Gatebox Elevation	PVC Elevation	Depth to Water Table	Screen Interval	Groundwater Elevation
CMW-1	97.06	97.05	8.47	1.0-9.0	88.58
CMW-2	97.70	97.56	2.66	2.0-6.0	94.90
CMW-3	99.88	99.88	2.80	2.0-5.0	97.08
CMW-4	99.52	99.51	4.39	1.0-4.5	95.12
KOW-1	100.67	100.47	---	0-2.8	---
KOW-2	98.48	98.36	12.50	8.5-18.5	85.86
KOW-3	95.25	95.25	---	4.8-7.8	---
MW-2	103.17	102.98	---	?-13.7	---
MW-5	105.27	105.17	6.48	?-20.20	98.69

Notes: 1. All measurements given in feet.
2. Depth to water measured from reference mark on top of PVC casing.
3. CMW-1, MW-2, and MW-4 are screened in bedrock.
4. (---) No groundwater present in well.

Groundwater surface elevation contours were computer-generated using Surfer version 5.0 Golden Software©, Inc., and are provided for reference as Figure 5. Using the data from the shallow groundwater wells, CMW-2, CMW-3, and CMW-4 on March 23, 1995, groundwater flow in the vicinity of the surveyed wells was inferred to have an overall hydraulic gradient in a southeasterly direction.

7.7 Groundwater Parameters

On March 23, 1995, the temperature, pH, and specific conductivity of groundwater in each well were measured utilizing a Cole-Parmer pH wand and a YSI Model 3000 TLC meter. A summary of these groundwater screening results is as follows:

Table 7 - Groundwater Parameters (October 23, 1995)

Monitoring Well	Temperature (°C)	Conductivity (millimhos/cm)	pH (Standard Units)
CMW-1	5.3	0.255	6.21
CMW-2	5.1	0.272	5.50
CMW-3	3.7	0.266	5.65
CMW-4	5.3	0.344	6.30
KOW-2	3.6	0.432	5.70
MW-5	3.7	0.277	5.88

Note: Conductivity given in millimhos at 25 °C

The temperature, conductivity, and pH measured in monitoring wells CMW-1 through CMW-4, KOW-2, and MW-5 were consistent with values for normal ranges of these parameters in New England groundwater (Hem, John D., Study and Interpretation of Chemical Characteristics of Natural Water, U.S. Geological Survey, Water-Supply Paper 2254, 1985).

7.8 Groundwater Sampling

Groundwater samples were collected from monitoring wells with sufficient groundwater. CMW-1 through CMW-3, KOW-2, and MW-5 were sampled by CONECO personnel on March 24, 1995. No water was present in monitoring wells KOW-1, KOW-3, and MW-2, and insufficient water was present in CMW-4 to submit a viable sample. Additionally, a duplicate sample from monitoring well KOW-2, labeled CMW-5, and a blank sample, consisting of distilled water, labeled CMW-6 were submitted for analysis. Samples were collected using the applicable Standard Operating Procedure provided for reference in Appendix E (Tab 5).

Groundwater samples from the five monitoring wells were placed in 40-ml glass VOA vials fitted with Teflon caps for VOC analysis by EPA Method 8240. Groundwater samples from monitoring wells at 230 Bodwell Street, namely CMW-2, CMW-3, KOW-2, and MW-5, were placed in 1-liter plastic containers for dissolved cadmium and chromium analysis by EPA Method 200 (ICP). The duplicate and blank sample were submitted for VOC analysis by EPA Method 8240. All samples were delivered by courier to National Environmental Testing, Inc. of Bedford, Massachusetts, a Massachusetts-certified analytical laboratory, on March 27, 1995.

8.0 Analytical Results

8.1 Soil Analytical Results

Soil samples from test borings B-8, B-9, B-10, B-12, B-13, and B-15 were analyzed for VOCs by EPA Method 8240 and TPH by EPA Method 418.1. Original laboratory data,

laboratory QA/QC, methods, and the chain-of-custody form are included as Appendix G (Tab 7). The results of the VOC and TPH analysis are summarized in Table 8.

Table 8 - Soil Analytical Results

Sample ID	TPH by EPA 418.1 mg/kg	Volatile Organic Compounds by EPA Method 8240 (µg/kg)				
	TPH	Benzene	Toluene	Ethylbenzene	Xylenes	Acetone
B-8/S-3 (4-6')	610	---	---	---	---	---
B-9/S-3 (4-6')	---	---	---	---	---	41
B-10/S-1 (0-1.5')	---	---	---	---	---	---
B-12/S-3 (4-5')	---	---	---	---	---	79
B-13/S-2 (2-4')	---	---	---	---	---	---
B-15/S-3 (4-5')	---	---	---	---	---	110
Method 1 Standard	2,500*	60,000	500,000	500,000	500,000	60,000

Notes: * This concentration is also the reportable concentration for S-2 soils.
1) (---) Not Detected above laboratory quantification limits.
2) Method 1 Risk Characterization Standards derived in Section 9.0

8.2 Groundwater Analytical Results

Groundwater samples from monitoring wells CMW-1 through CMW-3, KOW-2, and MW-5 were analyzed for VOCs by EPA Method 8240. Groundwater samples from monitoring wells CMW-2, CMW-3, KOW-2, and MW-5 were analyzed for dissolved cadmium and chromium by EPA Method 200 (ICP). The duplicate and blank samples, CMW-5 and CMW-6, were analyzed for VOCs by EPA Method 8240. Original laboratory data, laboratory QA/QC, methods, and the chain-of-custody form are included as Appendix G (Tab 7). The results of the TPH and VOC analyses are summarized in Table 9.

Table 9 - Groundwater Analytical Results

Monitoring Well	Dissolved Cd and Cr by EPA Method 200 ICP (mg/l)		Volatile Organic Compounds by EPA Method 8240 (µg/l)				
	Dissolved Cd	Dissolved Cr	Benzene	Toluene	Ethylbenzene	Xylenes	Acetone
CMW-1	NA	NA	---	---	---	---	---
CMW-2	---	---	---	---	---	---	---

CMW-3	---	---	---	---	---	---	---
CMW-5	NA	NA	---	---	---	---	---
CMW-6	NA	NA	---	---	---	---	---
KOW-2	---	---	---	---	---	---	---
MW-5	---	---	---	---	---	---	---
Method 1 Standard	0.010	2	2,000	6,000	4,000	6,000	50,000

Notes: 1) (---) = None Detected above laboratory quantification limits.
2) (NA) = Not Analyzed
3) Method 1 Risk Categorization Standards derived below in Section 9.0.

Additionally, methylene chloride was detected in the sample from monitoring well CMW-2 at 42 µg/l. The Method 1 Standard for methylene chloride is 50,000 µg/l. In addition, 2-Butanone (MEK) was detected in CMW-3 at 28 µg/l. The Method 1 Standard for MEK is 50,000 µg/l.

9.0 RISK CHARACTERIZATION

Under the MCP (310 CMR 40.0000) - January 13, 1995, once a property has been classified as a Disposal Site, a risk assessment is necessary to demonstrate that a condition of no "Significant Risk" to health, safety, public welfare, and the environment exists at the Site. Otherwise, further remedial actions are required to achieve a condition of "No Significant Risk."

To determine whether further action is required at the Site, it is first necessary to determine whether a condition of no "Significant Risk" exists using Method 1, Method 2 or Method 3 Risk Characterization procedures. The following sections present the classifications of soil and groundwater for an MCP Method 1 Risk Characterization, and the applicable threshold concentrations for the contaminants present at the Site.

9.1 Soil Categories

The classifications for soil are listed at 310 CMR 40.0933. Soil at a given property is classified as S-1, S-2, or S-3, based upon exposure potential criterion: Frequency of use by adults and children, the intensity of the use of the Site, and the accessibility of the soil. Frequency of use is classified as "high, low, or not present." Intensity is classified as "high or low," and soil accessibility is described as "accessible, potentially accessible, or isolated." The Site is classified as follows:

Frequency of Use: Adults are present at the Disposal Site at "high frequency," as adults work in the surrounding environment on a continuing basis.

Intensity of Use: Intensity of use at the Site is considered "high," as potential Site activities have the potential to disturb soil and thus result in either direct contact with the soil, or inhalation of soil-derived dust.

Accessibility: Soil is considered "potentially accessible," since the area of potential soil contamination is between 3 and 15 feet below grade.

Using these parameters, soils at the Site are classified as Category S-2.

9.2 Groundwater Categories

The classifications for groundwater are listed at 310 CMR 40.0932. Groundwater at all locations is classified as category GW-3, based upon its potential to discharge to surface water. Groundwater can also be classified as GW-1 based upon potential to be used as drinking water supply, and as GW-2, based upon the potential for inhalation of vapors of oil or hazardous materials in indoor air.

The GW-1 groundwater classification evaluation for the Site, based upon a DEP Geographic Information Survey (GIS) Site Scoring Map, and information available from the Avon Health Department and Conservation Commission, is shown in the following table:

Table 10 - GW-1 Groundwater Classification Criteria

GW-1 Criteria	GW-1 Classification
1) within the Zone II for a public water supply	No
2) within an Interim Wellhead Protection Area	No
3) within a Potentially Productive Aquifer	No
4) within the Zone A of a Class A surface water body used as a public water supply	No
5) at any point located 500 or more feet from a public water supply distribution pipeline,	No
6) at any groundwater sampling point located within 500 feet of a private water supply well	No

Under these criteria, groundwater at the Site is not subject to the GW-1 classification. Groundwater at the Site from monitoring well CMW-2, CMW-3, KOW-2, and MW-5 are classified as category GW-2, as these sampling points are located within 30 feet of a building, and the average depth to groundwater is less than 15 feet. Groundwater from monitoring well CMW-1 is classified as GW-3, as this sampling point is greater than 30 feet from the Site buildings. All groundwater at the Site is also classified as GW-3, based upon its potential to discharge to surface water.

9.3 Method 1 Risk Characterization

Using the soil and groundwater classifications derived above, Method 1 soil and groundwater threshold concentrations for each contaminant detected at the Site are listed in the MCP at Table 2 (310 CMR 40.0975(6)(a)) and Table 1 (310 CMR 40.0974(2)), respectively. The most stringent concentration from each groundwater classification is considered to be the threshold under which a concentration of no "Significant Risk" exists.

Table 11 - Method 1 Risk Characterization - Soil

	Soil (µg/g)					
Classification	**TPH**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**Acetone**
S-2/GW-2	2,500	60	500	1,000	500	60
S-2/GW-3	2,500	60	1,000	500	1,000	60
Method 1 Standard	2,500	60	500	500	500	60

Note: Only S-2/GW-2 standards are applicable to monitoring well CMW-1.

Using these criteria and the analytical data presented in Section 8.0, the Method 1 Standards for soil for TPH and acetone were not exceeded.

Table 12 - Method 1 Risk Characterization - Groundwater

	Groundwater (µg/l)						
Classification	**TPH**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**MC**	**MEK**
GW-2	NA	2,000	6,000	30,000	6,000	50,000	50,000
GW-3	50,000	7,000	50,000	4,000	50,000	50,000	50,000
Method 1 Standard	50,000	2,000	6,000	4,000	6,000	50,000	50,000

Notes: MC = Methylene Chloride
MEK = Methyl Ethyl Ketone

Using these criteria and the analytical data presented in Section 8.0, the Method 1 Standards for groundwater for acetone, methylene chloride, and methyl ethyl ketone were not exceeded. Therefore, based on current analytical data, a condition of no "Significant Risk" currently exists in soil and groundwater at the Site.

9.4 Imminent Hazard Evaluation

Using the criteria listed at 310 CMR 40.0320 and 310 CMR 40.0950, a determination was made as to whether contamination at the Disposal Site could potentially pose an "Imminent Hazard" to human or environmental receptors. The criteria for a potential "Imminent Hazard" are listed below.

Table 13 - Imminent Hazard Criteria

Imminent Hazard Criterion	Criterion Met
1) Presence of vapors at concentration greater than 10% of LEL	No
2) Release of reactive or explosive hazardous materials	No
3) Release to roadway that endangers public safety	No
4) Release which poses threat to human health for short-duration exposure	No
5) Release which produces immediate or acute impact to fish populations	No
6) Release which impacts drinking water well at 10 times RCGW-1 standards	No
7) Release of metals or PCBs within 6 inches of surface in S-1 area	No

As none of the criteria listed at 310 CMR 40.0321 are applicable to the Disposal Site, and a condition of "No Significant Risk" is present at the Site, no "Imminent Hazard" currently exists at the Disposal Site.

10.0 CONCLUSIONS

Environmental conditions of the industrial property located at 230 and 238 Bodwell Street in Avon, Massachusetts were evaluated by the scope of work required for a "Phase I - Initial Site Investigation" as presented in the revised "Massachusetts Contingency Plan" (310 CMR 40.0000). The purpose of this Phase I - Initial Site Investigation was to describe current Site conditions, determine Site history, and to evaluate potential soil and groundwater relating to elevated concentrations of chlorinated compounds discovered at the Site in 1988. As such,

this investigation included a review available environmental reports previously prepared for the Site, Site historical information, and information provided by appropriate federal, state and local regulatory agencies. Additional tasks to complete the investigation included a surficial investigation of physical Site conditions, the preparation of a Site-specific Health and Safety Plan, performance of eight test borings with headspace screening of soil samples, installation of four groundwater monitoring wells, and analytical testing of soil and groundwater at an independent Massachusetts-certified laboratory.

According to available records and personnel familiar with the Site, the Site was first developed in 1972 with the construction of the Winchester Industries, Inc. marine electrical switches manufacturing and assembly facility. This building is located on the southern portion of the Site (currently designated as 230 Bodwell Street). A second building was constructed in 1979 as an addition to Winchester Industries, Inc. and was utilized for warehouse storage and office space by Winchester Industries, Inc. and the Jacques Tool Company. This building is located on the northern portion of the Site (currently designated as 238 Bodwell Street). Both Site buildings were situated on one parcel of land, owned by Winchester Industries, Inc., and designated as 230 Bodwell Street. In 1992, this parcel was divided into a southern and northern parcel, 230 and 238 Bodwell Street, respectively. The southern portion of the Site was purchased by 230 Bodwell Corporation and has been occupied by Cuming Corporation, a manufacturer of flotation devices and radar absorption and deflective devices, since 1992. The northern portion of the Site was purchased by Mr. Peter Runton and was occupied by Classic Design, a fiberglass sunroof manufacturing and installation company, until 1993. Since 1993, 238 Bodwell Street has been occupied by Conrad Corporation, a manufacturer of wooden office fixtures.

Based on the information and observations described herein, the following is a summary of findings:

- The groundwater flow direction at the Site was determined to have an overall hydraulic gradient in a southeasterly direction.

- The review of federal and state agencies revealed that the Site is the former Winchester Industries Non-Priority Disposal Site and CERCLA Site. Winchester Industries, Inc. was listed due to elevated concentrations of chlorinated compounds discovered in May 1988 in the septic system in front of the former Winchester Industries, Inc. manufacturing and assembly facility at 230 Bodwell Street.

- A review of information available at state and federal agencies indicated that a Site investigation conducted by Kurz Associates, Inc. (KAI) in 1988 detected concentrations of trichloroethene and trans-1,2-dichloroethene, and background concentrations of xylenes and petroleum hydrocarbons in groundwater monitoring well KOW-2. In addition, elevated concentrations of trichloroethene was detected in the septic holding tanks associated with Winchester Industries, Inc. manufacturing and assembly facility, currently Cuming Corporation. The septic tanks were subsequently pumped out and the

primary septic tank was resampled. Reduced concentrations of chlorinated compounds were detected in this sample.

An investigation was conducted by Gale Associates, Inc. in 1988. This investigation consisted of analysis of soil and groundwater. Concentrations of trichloroethylene and metals were detected in KOW-2, and concentrations of chlorinated compounds were detected in an unspecified septic tank at the manufacturing and assembly facility.

A second investigation was conducted by Gale Associates, Inc. in 1988. This investigation consisted of the installation of a bedrock groundwater monitoring well south of the previously sampled septic tank/leaching field area. No VOCs or metals were detected in this monitoring well. Groundwater monitoring well KOW-2 was sampled in December 1988 and concentrations of 1,300 ppb trichloroethylene and 43 ppb of tetrachloroethane were detected. This groundwater monitoring well was sampled again in March 1989 and 520 ppb trichloroethylene was detected. Additional groundwater monitoring of KOW-2 detected no VOCs in five subsequent sampling rounds. An additional groundwater sampling round was conducted in 1991 and consisted of resampling of groundwater monitoring wells KOW-2, MW-4, and MW-5. No VOCs were detected in the three monitoring wells.

- A review of information available at local, state, and federal agencies indicated several releases of oil and hazardous materials at properties within a 0.25-mile radius of the Site. These properties were determined to be hydraulically downgradient and/or crossgradient from the Site; and, as such, are not expected to pose a threat to the environmental quality of the Site.

- Observations made during the performance of the eight test borings indicated unconsolidated deposits of miscellaneous fill material from grade to approximately 2 to 5 feet below grade underlain by glacial till from 2 to 6 feet below grade. The glacial till was underlain by bedrock. The only photoionization detector (PID) reading measured during this test boring program was recorded at B-8 (4-6') at 0.8 ppm. No other volatile compounds were detected during the test boring program.

- Soil analysis of the test boring samples revealed no concentrations of TPH or VOCs at or above the Method I Risk Characterization Standards for S-2 Soil (310 CMR 40.0975(6)(a)). A TPH concentration (610 ppm), above the most stringent S-1 standard of 500 ppm, detected in boring B-8 at 2-4' is considered to be a separate release from the initial listing of the Site which relates to chlorinated compounds. As such, this TPH concentration is below the reportable concentration of 2,500 ppm for S-2 soil (RCS-2); therefore, is not subject to any reporting criteria as defined in the MCP (310 CMR 40.0000).

- Laboratory analysis of groundwater samples from the five on-Site monitoring wells revealed no concentrations of VOCs or TPH at or above the Method I Risk Characterization Standards for GW-2 and GW-3 Groundwater (310 CMR 40.0974(2)).

- As part of the Method I Risk Characterization, soil and groundwater were classified in accordance with 310 CMR 40.0930. All groundwater at the Site is classified as GW-3, based upon its potential to discharge to surface water bodies. Groundwater located within 30 feet of a building and having the potential for inhalation of vapors of oil or hazardous materials in indoor air is additionally classified as GW-2. All soil at the Site is classified as S-2, as adults are present at the Disposal Site at high frequency, intensity of use at the Site is high, and the soil is considered potentially accessible.

- A condition of "No Significant Risk" exists for the soil and groundwater, as none of the concentrations of the detected compounds were at or above the Method 1 Standards. A condition of "No Significant Risk" is present at the Site, as defined in 310 CMR 40.0006.

Based on the Phase I - Initial Site Investigation, the following recommendations are offered as a guideline to regulatory requirements needed to further address the release of oil and hazardous materials identified at the Site.

1. A copy of this report should be submitted to the DEP - Southeast Region. A Supplemental Risk Reduction Transmittal Form has been completed for this submittal and is included in Appendix H. In addition, the availability of the report should be made to the Avon Chief Municipal Officer and Board of Health, pursuant to 310 CMR 40.1403.

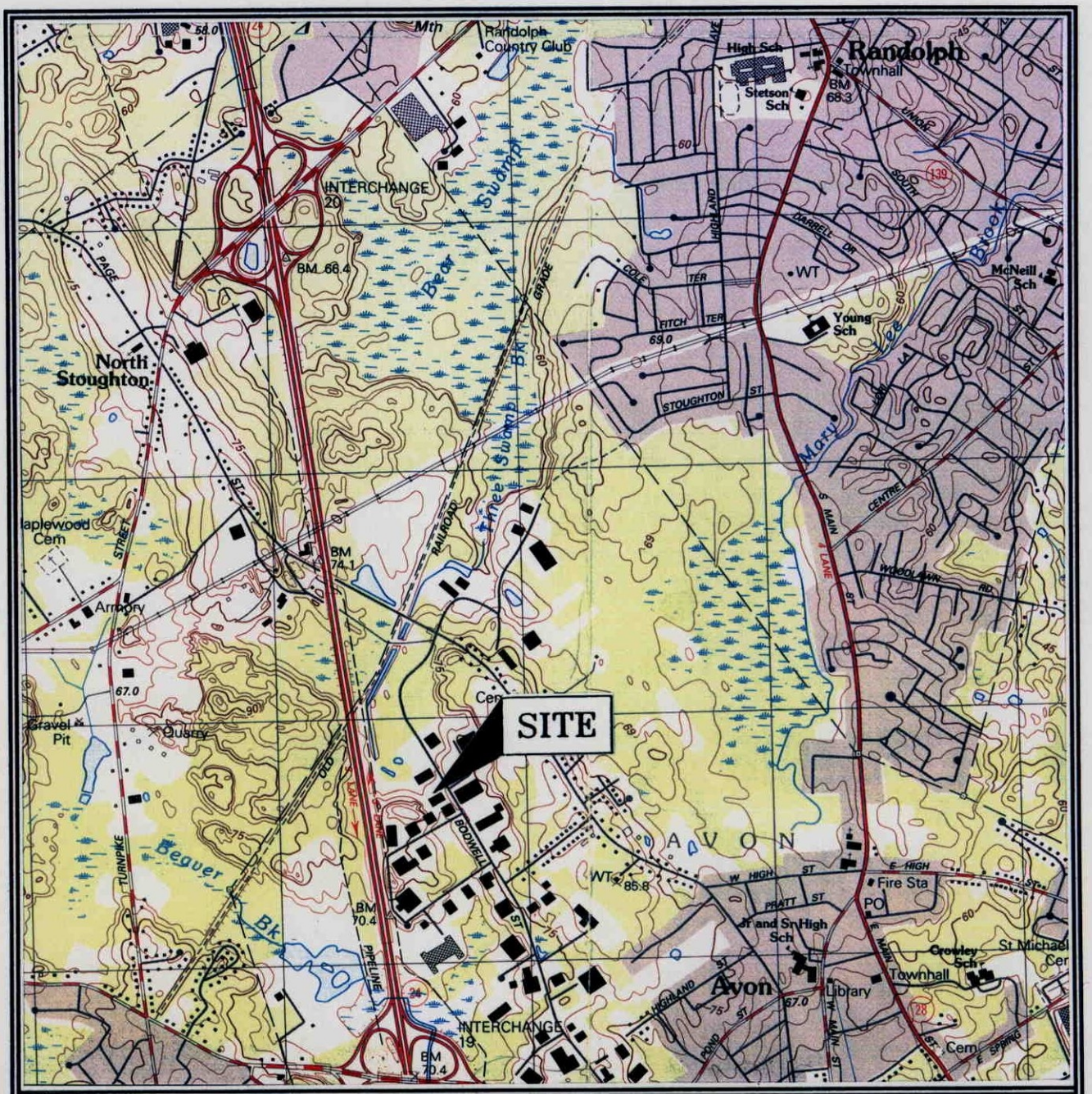
2. As a Condition of "No Significant Risk" exist at the Site, a Response Action Outcome (RAO) Statement should be submitted to the DEP pursuant to 310 CMR 40.1000. The RAO statement should apply to the entire Disposal Site.

11.0 LIMITATIONS

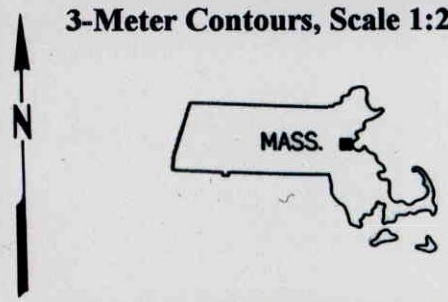
The conclusions expressed by CONECO in this report are based solely on the references cited. Observations were made under the conditions stated. Information provided by federal, state, and local agencies contacted was relied upon as accurate and complete. The purpose of this study was to establish via a limited scope of work whether there is evidence that a release of oil or hazardous materials has occurred at the Site or that a threat of release exists. This report represents CONECO's opinion relative to such evidence. Unless otherwise specified in the scope of work, CONECO accepts no responsibility for client performance of recommendations as may be offered in this report. No attempt was made to investigate Site owner or operator compliance with federal, state, or local laws and regulations in connection with Site usage.

Because certain materials are considered by public health officials as presenting significant hazards in indoor environments, and where simple observations or other evidence has allowed, CONECO has indicated their potential presence on the Site in this report. However, unless specifically stated in the scope of work, CONECO has not performed specific testing or analysis to determine the presence or concentration of asbestos, urea formaldehyde, lead paint, radon, or polychlorinated biphenyls.

Should additional information become available concerning this Site or neighboring properties in the future, that information should be made available to CONECO for review so that the conclusions presented in this report may be modified as necessary.



U.S.G.S. 1985 Norwood Quadrangle
3-Meter Contours, Scale 1:25,000



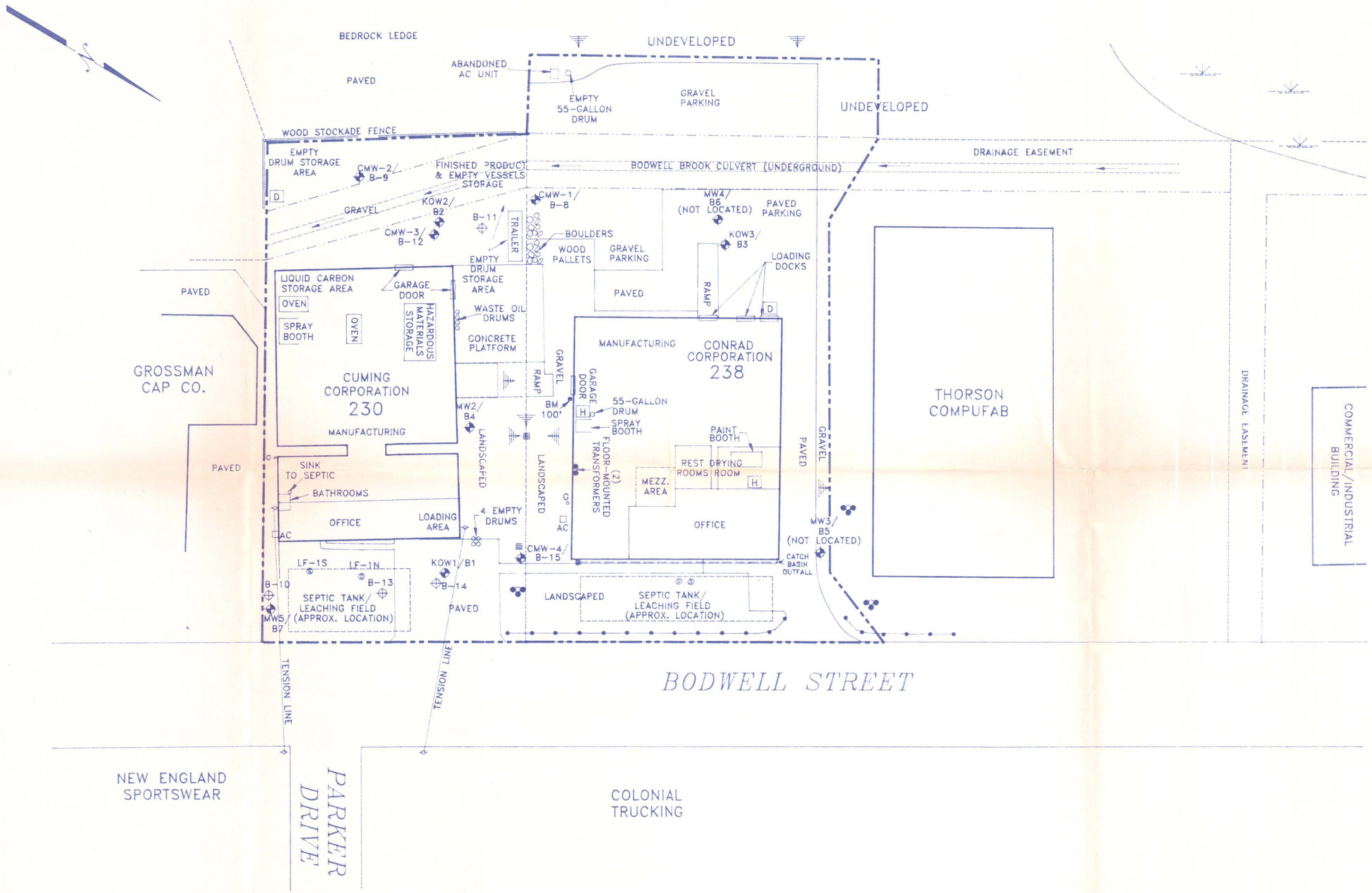
Coordinates: 42° 08' 13"N 71° 03' 39"

CONECO ENVIRONMENTAL

Site Locus Map

Former Winchester Industries
230 and 238 Bodwell Street
Avon, Massachusetts

FIGURE 1



NOTE:
SITE PLOT PLAN ADAPTED FROM AVON ASSESSORS' MAP AND MAY 6, 1988 KURZ ASSOCIATES, INC. 21E ASSESSMENT REPORT

0 40 80
SCALE: 1"=40'

LEGEND

- SITE BOUNDARY
- LOT BOUNDARY
- EASEMENT BOUNDARY
- POST & RAIL FENCE
- CMW-1 CONECO MONITORING WELL LOCATION & NUMBER
- UTILITY POLE
- SEPTIC MANHOLE
- SLOPE DOWN
- H HAZARDOUS MATERIALS STORAGE CABINET
- G GAS METER
- WETLANDS
- AC AIR CONDITIONER UNIT
- (3) POLE-MOUNTED TRANSFORMERS
- CATCH BASIN
- D DUMPSTER

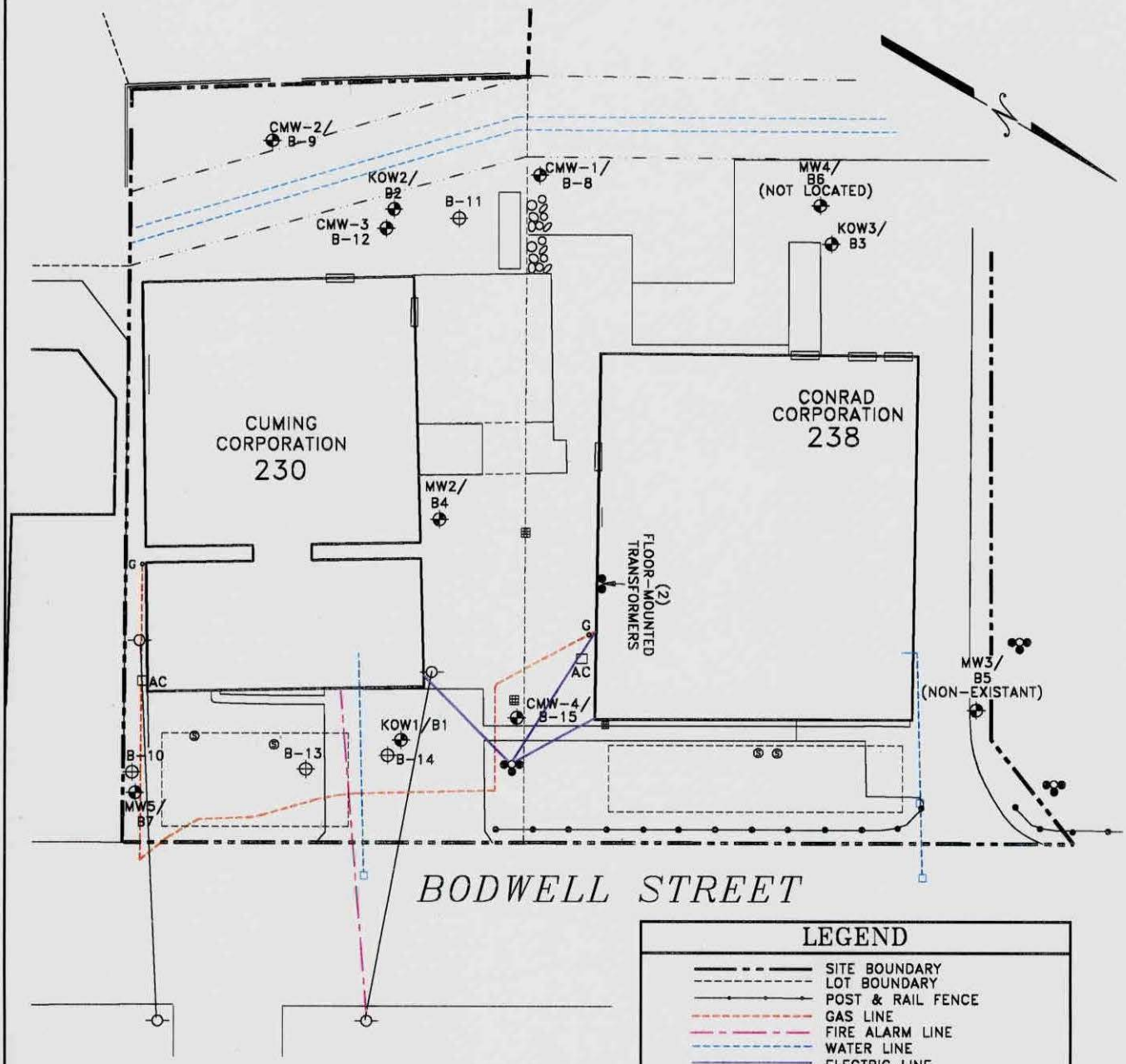
CONECO ENVIRONMENTAL
4 FIRST STREET, BRIDGEWATER, MASSACHUSETTS (508) 807-3191

	DRAWN	CHECKED	APPROVED
BY	C.K.M.		
DATE	3/28/95		

SITE PLOT PLAN

FORMER WINCHESTER INDUSTRIES, INC.
238 BODWELL STREET
AVON, MASSACHUSETTS

SCALE	PROJECT NO.	DRAWING NUMBER
AS NOTED	3184	FIGURE 2



NOTE:
SITE PLOT PLAN ADAPTED FROM AVON ASSESSORS' MAP AND MAY 6, 1988 KURZ ASSOCIATES, INC. 21E ASSESSMENT REPORT

LEGEND

- SITE BOUNDARY
- LOT BOUNDARY
- POST & RAIL FENCE
- GAS LINE
- FIRE ALARM LINE
- WATER LINE
- ELECTRIC LINE
- CMW-1 — CONECO MONITORING WELL LOCATION & NUMBER
- SEWER MANHOLE
- G — GAS METER
- AC — AIR CONDITIONER UNIT
- WATER BOX
- (3) POLE-MOUNTED TRANSFORMERS
- CATCH BASIN
- UTILITY POLE

UTILITIES PLAN

CONECO ENVIRONMENTAL

4 FIRST STREET, BRIDGEWATER, MASSACHUSETTS (508) 697-3191

FORMER WINCHESTER INDUSTRIES, INC.
238 BODWELL STREET
AVON, MASSACHUSETTS

	DRAWN	CHECKED	APPROVED
BY	C.K.M.		
DATE	4/7/95		

SCALE	PROJECT NO.	DRAWING NUMBER
AS NOTED	3184	FIGURE 3

SITE NAME:

FORMER WINCHESTER INDUSTIRES
230 & 238 BODWELL ST
AVON, MA
4666650n 329625ew

March 28, 1995

0 2000 feet
0 500 meters

SCALE 1:15000

The information shown on this map is the best available at the date of printing. Please refer to the data source descriptions document.

MA DEP - Bureau of Waste Site Cleanup

Site Scoring Map: 500 feet & 0.5 Mile Radii

- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer
- NOT Potentially Productive Medium Yield Aquifer
- NOT Potentially Productive High Yield Aquifer
- EPA Designated Sole Source Aquifers
- DEP Approved Wellhead Protection Area - ZONE 2
- Interim Wellhead Protection Area
- Public Surface Water Supply
- Lakes, Ponds, Other Fresh Water Features
- Bays, Estuaries, Other Salt Water Features
- Fresh Water Non-Forested Wetlands
- Salt Water Wetlands
- State, Federal, Municipal, Nonprofit and Private Open Space and Recreational Facilities
- Areas of Critical Environmental Concern
- DEP Permitted Solid Waste Facilities
- NHESP Estimated Habitats of Rare Wetlands Wildlife 1995 - for use with Wetlands Protection Act ONLY

- State, U.S., Interstate Routemarkers
- Interstate Highway
- U.S. Highway
- State Highway
- Other Roads
- Municipal Boundary
- County Boundary
- Train
- Powerline
- Pipeline
- Aqueduct
- Major Drainage Basin
- Sub Drainage Basin
- Zone of Contribution
- Public Water Supply - Groundwater
- Public Water Supply - Surface Water
- Non Community Public Water Supply
- Certified Vernal Pools

DEP

MASSGIS

N
W
S

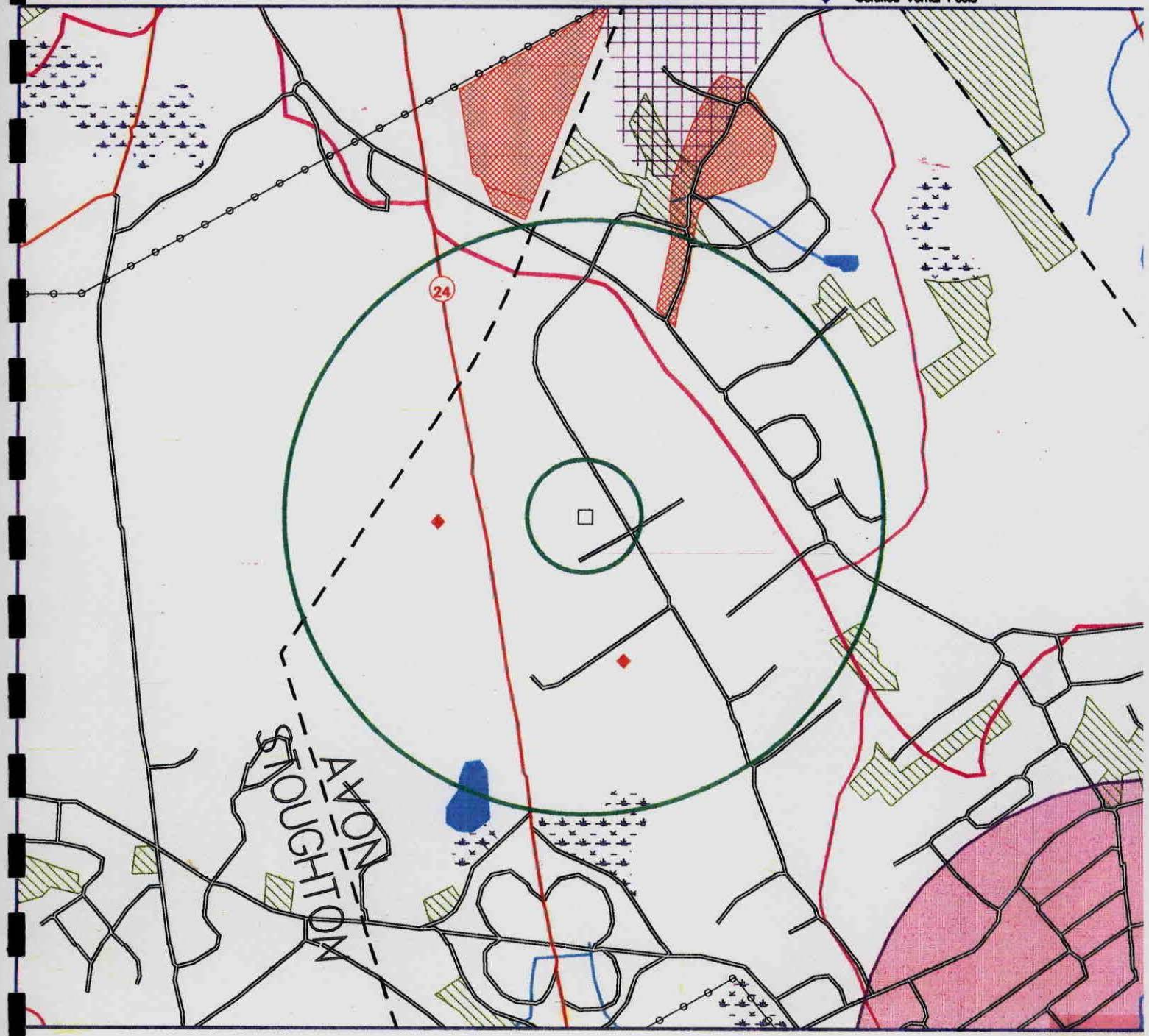
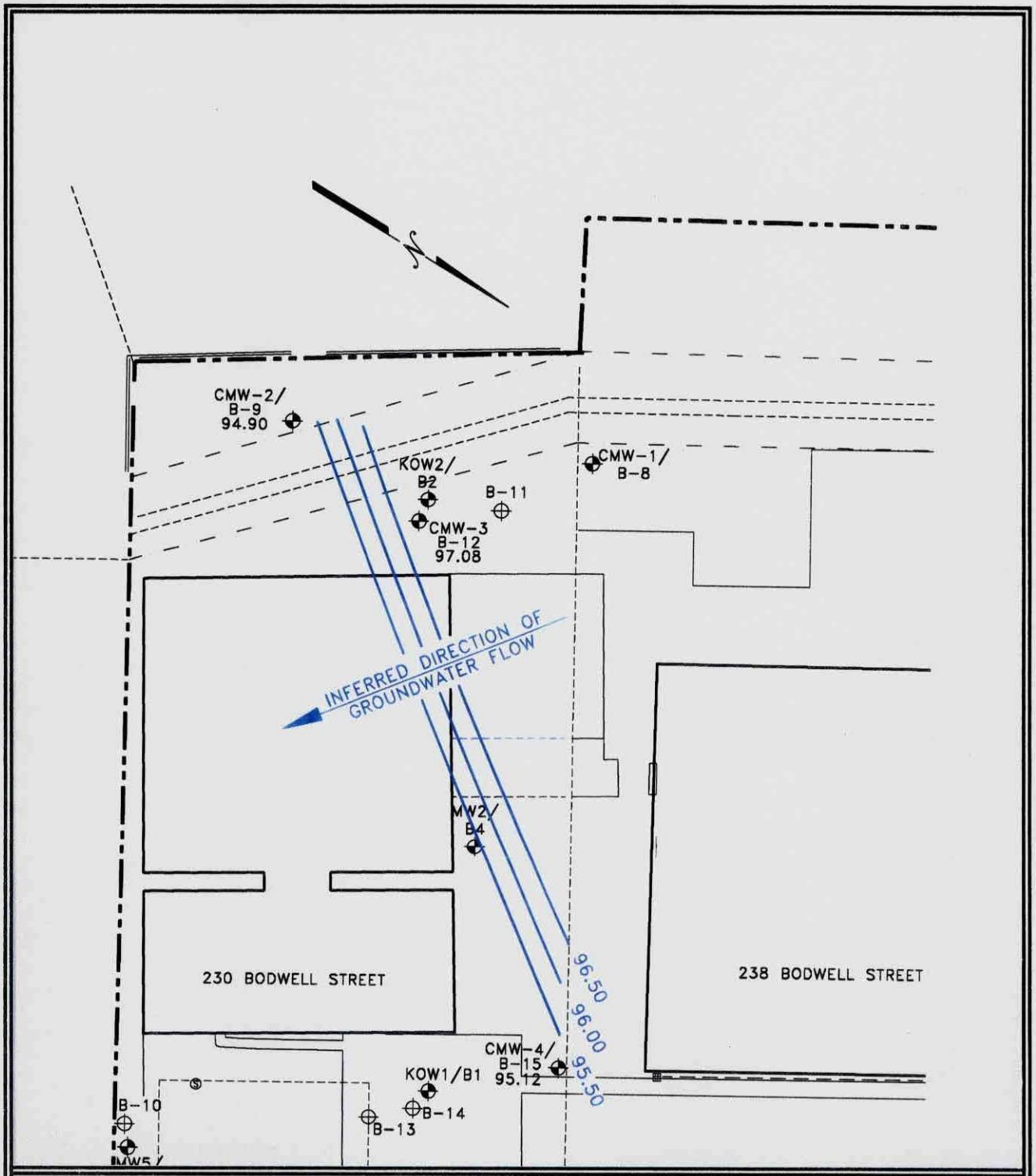


FIGURE 4



Notes:

1. Blue lines depict groundwater elevations as measured on March 23, 1995.
2. Elevations measured relative to arbitrary benchmark of 100.00 feet.

CONECO ENVIRONMENTAL

Groundwater Contour Plan

FIGURE 5

Appendix A

Site Photographs

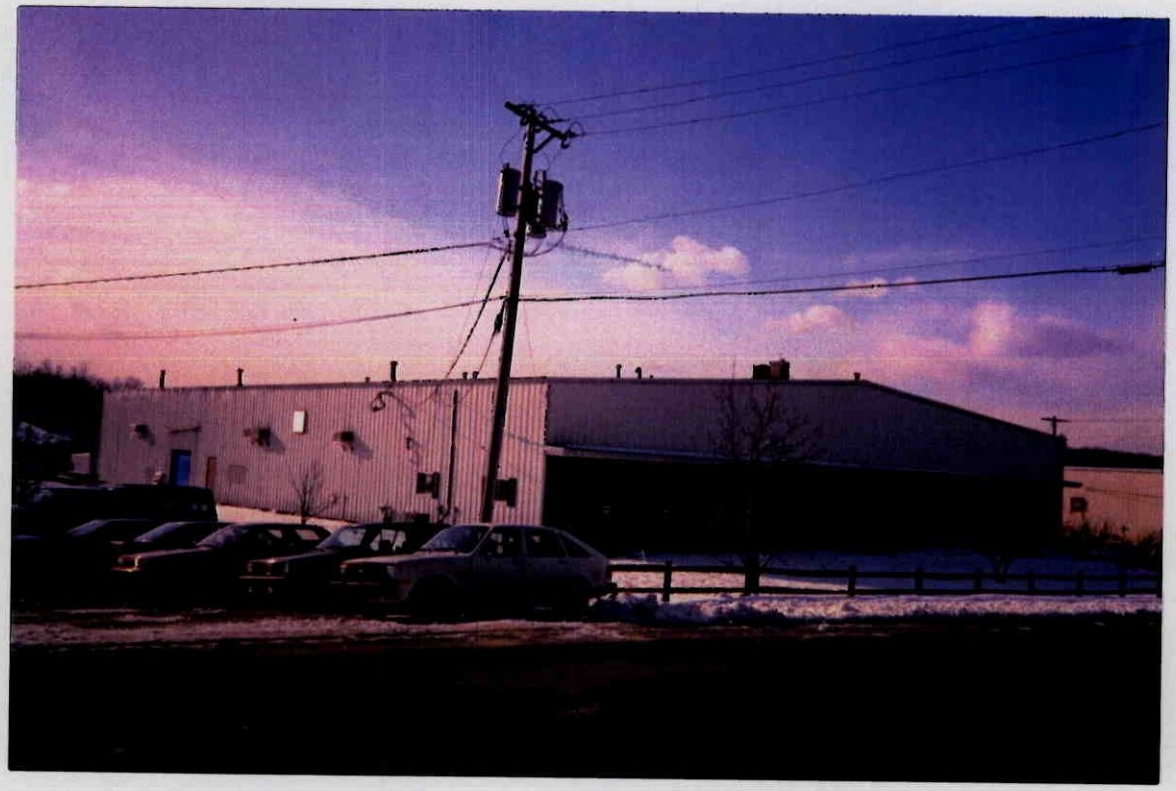


Photo 1: Front Portion of Conrad Corporation, 238 Bodwell Street
(Note: Three Pole-Mounted Transformers)

Photo 2: Rear Portion of 238 Bodwell Street
(Note: View Facing East)

Photo 3: Rear Portion of 238 Bodwell Street
(Note: View Facing East)

Photo 4: Empty Drum Storage Area. Rear Portion of Cuming Corporation, 230 Bodwell Street
(Note: Photo taken from 238 Bodwell Street, View Facing South)

Photo 5: Interior of Conrad Corporation, 238 Bodwell Street

Photo 6: Rear Portion of Cuming Corporation, 230 Bodwell Street (Note: Empty drum storage areas along the fence)

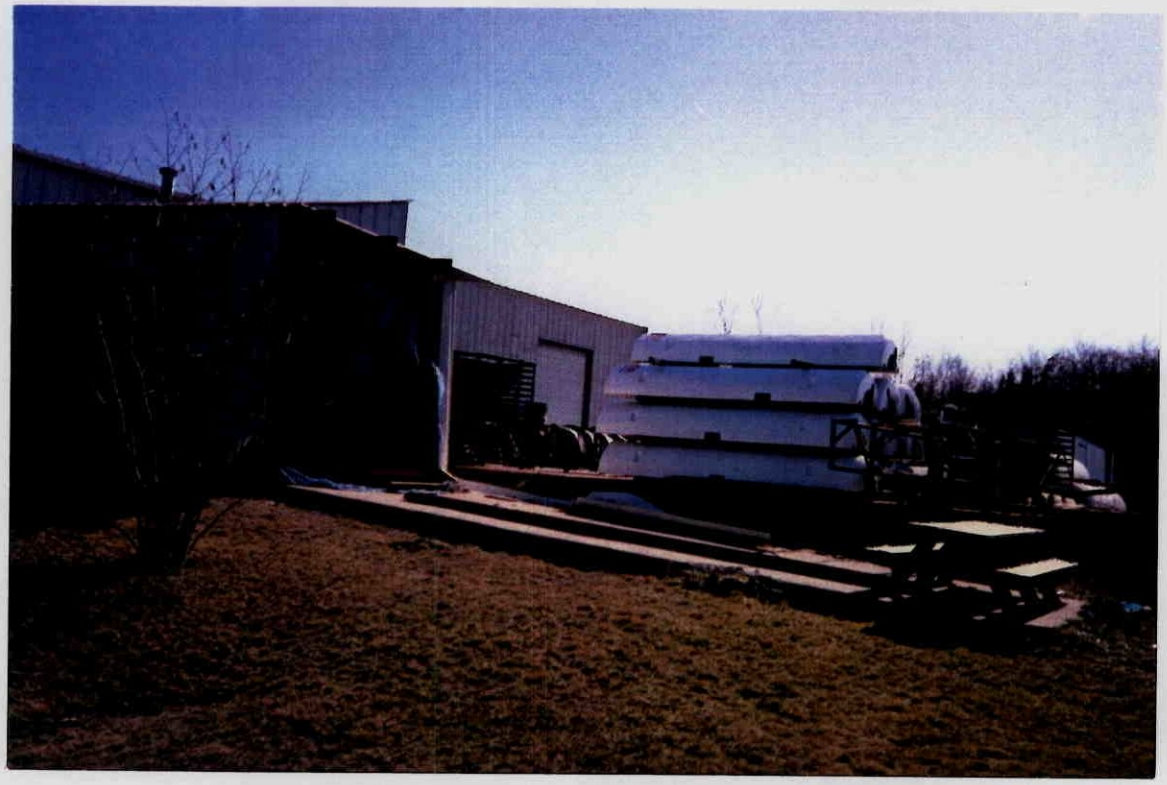


Photo 7: Ramp Way and Elevated Concrete Platform
(Note: Located between Site buildings)

Photo 8: Typical Interior - Cuming Corporation, 230 Bodwell Street
(Note: Cinder block low temperature oven located to the left)

Appendix B

Aerial Photograph - March 27, 1990

CONECO ENVIRONMENTAL

Aerial Photograph
Former Winchester Industries, Inc., Avon

Scale 1" = 480'

March 27, 1990

Appendix C

Previous Work Analytical Data Summary

Winchester Industries, Inc.
Groundwater Analytical Data Summary - KOW-2

	KOW-2				
Compound	2/10/88	3/17/88	6/20/88	12/21/88	3/23/89
VOCs (ppb)					
trans-1, s-dichloroethane	39	ND	ND	ND	ND
trichloroethylene	96	190	140	1,300	520
1,1,1-trichloroethane	ND	ND	ND	trace	ND
tetrachloroethene	trace	5	ND	43	ND
ethylbenzene	trace	ND	ND	ND	ND
total xylenes	5	ND	ND	ND	ND
Petr. Hydrocarbons (ppm)	1.5	Not analyzed	trace	Not analyzed	trace
Metals (ppm)		Not analyzed		Not analyzed	Not analyzed
chromium (dissolved)	ND		0.02		
chromium (hexavalent)	ND		ND		
cadmium	ND		0.02		
copper	ND		ND		
arsenic	Not analyzed		0.021		
barium	Not analyzed		0.2		
Cyanide	Not analyzed	Not analyzed	ND	Not analyzed	Not Analyzed

Notes: 1) ND = not detected above laboratory method detection limits
2) No samples were taken from KOW-1 and KOW-3 due to insufficient groundwater
3) All VOCs were non-detectable in five subsequent sampling rounds from June 29, 1989 to September 17, 1991.

Winchester Industries, Inc. Analytical Data Summary - Septic Holding Tanks

	LF-1S		LF-1N
Compound	3/22/88	4/8/88	3/23/88
VOCs (ppb)			
Trichloroethene	40,000	2,250	1,000
Trans-1,2-dichloroethene	ND	1,400	ND
1,1,1-trichloroehtane	ND	450	ND
1,1-dichloroethane	ND	55	ND

Note: In addition, Gale Associates, Inc. sampled one of these septic tanks on June 20, 1988. Analytical data from that sample is as follows: 8 ppb 1,1,-dichloroethane, 52 ppb of Trans-1,2-dichloroethene, 110 ppb of acetone, 10 ppb of xylene, trace 1,1,1-trichloroethane, trace trichloroethylene, and background hydrocarbons.

Winchester Industries, Inc. Groundwater Analytical Data Summary
Gale Associates, Inc. Monitoring Wells

	MW-3	MW-4	B-4	MW-5
Compound	6/20/88	6/20/88	6/20/88	7/26/88
VOCs (ppb)				
trans-1,2-dichloroethene	ND	ND	ND	ND
trichloroethene	ND	ND	ND	ND
tetrachloroethene	ND	ND	ND	ND
toluene	ND	ND	trace	ND
ethylbenzene	ND	ND	trace	ND
xylenes	ND	ND	trace	ND
Oil and grease (ppm)	ND	ND	Not analyzed	Not analyzed
Dissolved Cadmium	Not analyzed	Not analyzed	Not analyzed	ND
Cyanide	ND	ND	Not analyzed	Not analyzed

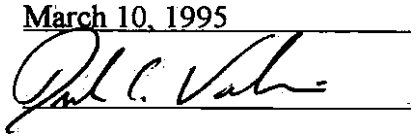
Notes: 1) ND = not detected above laboratory method detection limits
2) No sample was taken from MW-2 due to insufficient groundwater, instead soil from test boring B-4 was submitted for analysis

Appendix D

Site-Specific Health and Safety Plan

CONECO EVIRONMENTAL CORPORATION
SITE HEALTH & SAFETY PLAN

DATE: March 10, 1995

PREPARER'S SIGNATURE: 

A. SITE DESCRIPTION

LOCATION: 230 and 238 Bodwell Street, Avon, Massachusetts

CROSS STREET: Ledin Drive

SITE USAGE: Commercial/Industrial

PAST SITE USAGE: Commercial/Industrial

SURROUNDING AREA:

X Virgin Land	___ Residential	___ Park land/School
X Commercial/Retail	X Industrial	___ Other

ENTRY OBJECTIVES:

X Visual/Surficial	___ Test Pits/Identify Contaminated Soil
X Test Borings/Observation Wells	___ Soil Removal
X Sampling Soil/Water	___ Other

ON-SITE CONTROL: An exclusion zone will be designated on site as the area within a ten foot radius of the area of work interest. The Project Manager is responsible for physically delineating this zone with flagging, hazard cones, etc... Entry into the exclusion zone by individuals other than those listed in Section F of this document is prohibited without authorization from the Health/Safety Officer or the Group Supervisor.

B. HAZARD EVALUATION

The following substance(s) are known or suspected to be on the site or within the immediate site vicinity:

Substance	Anticipated Concentration	Media
Trichloroethane	Unknown	Soil and Groundwater
Trans-1, s-Dichloroethane	Unknown	Soil and Groundwater
Trichloroethylene	Unknown	Soil and Groundwater
Note: Material Safety Data Sheets for the above referenced compounds are attached.		

C. PERSONNEL PROTECTIVE EQUIPMENT

Based on an evaluation of the anticipated potential hazards, a personal protection level of _____ C, ___X__ D, or _____ Other (check one) has been designated for all personnel working in the exclusion zone.

Personnel must always be equipped to upgrade to level C if necessary. Down grading of the specified level of protection will not be made without authorization from the Health/Safety Officer and the Group Supervisor listed in Section F of this document.

Specific protection equipment and clothing materials are as follows (check as necessary):

1. RESPIRATORY PROTECTION: (MSHA/NIOSH Approved)

_____ Full Face (50 X P.E.L. or cartridge limits)

__X (C)__ Half Face (10 X P.E.L. or cartridge limits)

CARTRIDGE TYPE:

__X (C)__ Organic Vapor

__X (C)__ Dust/Mist/Fume

_____ Other

2.	COVERALLS:	X (C)	Standard TYVEK
		_____	Polylaminated TYVEK
		_____	Saran TYVEK
		_____	Other
3.	GLOVES:	X	Inner PVC
		_____	Outer Neoprene - Latex
		_____	Other
4.	BOOTS:	X	Rubber, Steel Toe
		_____	Disposable Outer
5.	HARD HAT	X	
6.	EYE PROTECTION	X	
7.	EAR PROTECTION	X	
8.	OTHER (specify)	_____	

D. ENVIRONMENTAL / PERSONNEL MONITORING

Air monitoring will generally be conducted by the CONECO Site personnel. Each designated operator will be properly trained in the use of the monitoring equipment. The results of all air monitoring will be recorded and used as the basis for specifying personnel protective equipment and determining the need to upgrade/downgrade protective measures. Work activities at the Site will be shut down if monitoring values exceed those specified below for Level C. Monitoring procedures and action levels are as follows:

Monitoring Device	Results	Action Required	Notes
HNU HW-101	<5 Units above Background	Repeat monitoring at 30-minute intervals; Discontinue when readings remain at or below background for 1 hour	a.
	5-25 Units above Background	Use half-mask respirator; Ventilate area; Monitor at 15-minute intervals; Discontinue when readings remain at or below background for 1 hour	a,b
	> 25 Units above Background	Stop Work; Contact supervisor and H&S Officer; Ventilate area	a,b

Notes:

a. Use appropriate lamp and calibrate unit.

b. Air-purifying respirators must be used only when use criteria are met and with appropriate cartridges.

E. DECONTAMINATION PROCEDURES

All personnel will refer to the CONECO Environmental Corporation Standard Operating Procedures Manual for DE-CON, unless otherwise specified or attached to this plan.

F. COMMUNICATION AND EMERGENCY PROCEDURES

The following items should be located and discussed with all field personnel prior to the initial entry of the exclusion zone or before work begins.

1) CONECO Health/Safety Plan
2) Personal protection equipment
3) On-site client contact
4) Location of nearest telephone
5) Emergency method of equipment shutdown
6) Hand signals

In the event of an emergency, development of hazardous site conditions, or significant changes in the work plan, communication will be established as soon as is practicable with the Group Supervisor and the on-site client contact.

EMERGENCY SERVICES ARE SERVICES ARE AVAILABLE AS FOLLOWS:

AGENCY	TELEPHONE
Police	583-6565
Fire	583-5353
Ambulance	583-5353
Public Health Officer	588-0414
Public Works Dept.	588-6424
DigSafe #951004751 & #951004753	1-800-322-4844
ChemTrec	1-800-424-9300
DEP HOTLINE	1-800-424-8802

CONECO CONTACTS	TELEPHONE
Project Manager: Brian F. Klingler	(508) 697-3191
Health and Safety Officer: M. Cathy Kiley	(508) 697-3191

NOTE: A FIRST AID KIT IS AVAILABLE FROM THE PROJECT MANAGER

Cardinal Cushing Hospital is the nearest Hospital to the Site. It is located at 253 North Pearl Street in Brockton with telephone number (508) 427-3000. This location is approximately 5 minutes away from the Site.

SEE ATTACHED MAP FOR HOSPITAL ROUTES

G. PLAN LIMITATIONS & ACKNOWLEDGMENT

The preceding Site Health and Safety Plan has been prepared pursuant to 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response. It is not intended to cover any other OSHA General Industry Standards. It has also been prepared for the protection of CONECO Environmental's personnel and as preliminary information for use by CONECO's subcontractors and other individuals involved in site environmental activities associated with the stated Entry Objectives. CONECO's subcontractors and other involved individuals not employed by CONECO are responsible for their own safety while on the Site. CONECO will not be responsible for providing personal protection equipment for individuals other than CONECO personnel. CONECO will not be responsible or held liable for personal injury resulting from the direct actions, negligence, or lack of approved health and safety training on the part of individuals other than CONECO personnel.

ALL SITE PERSONNEL HAVE READ THE ABOVE PLAN AND ARE FAMILIAR WITH ITS PROVISIONS. (Please sign in the appropriate space below)

Group Supervisor _____

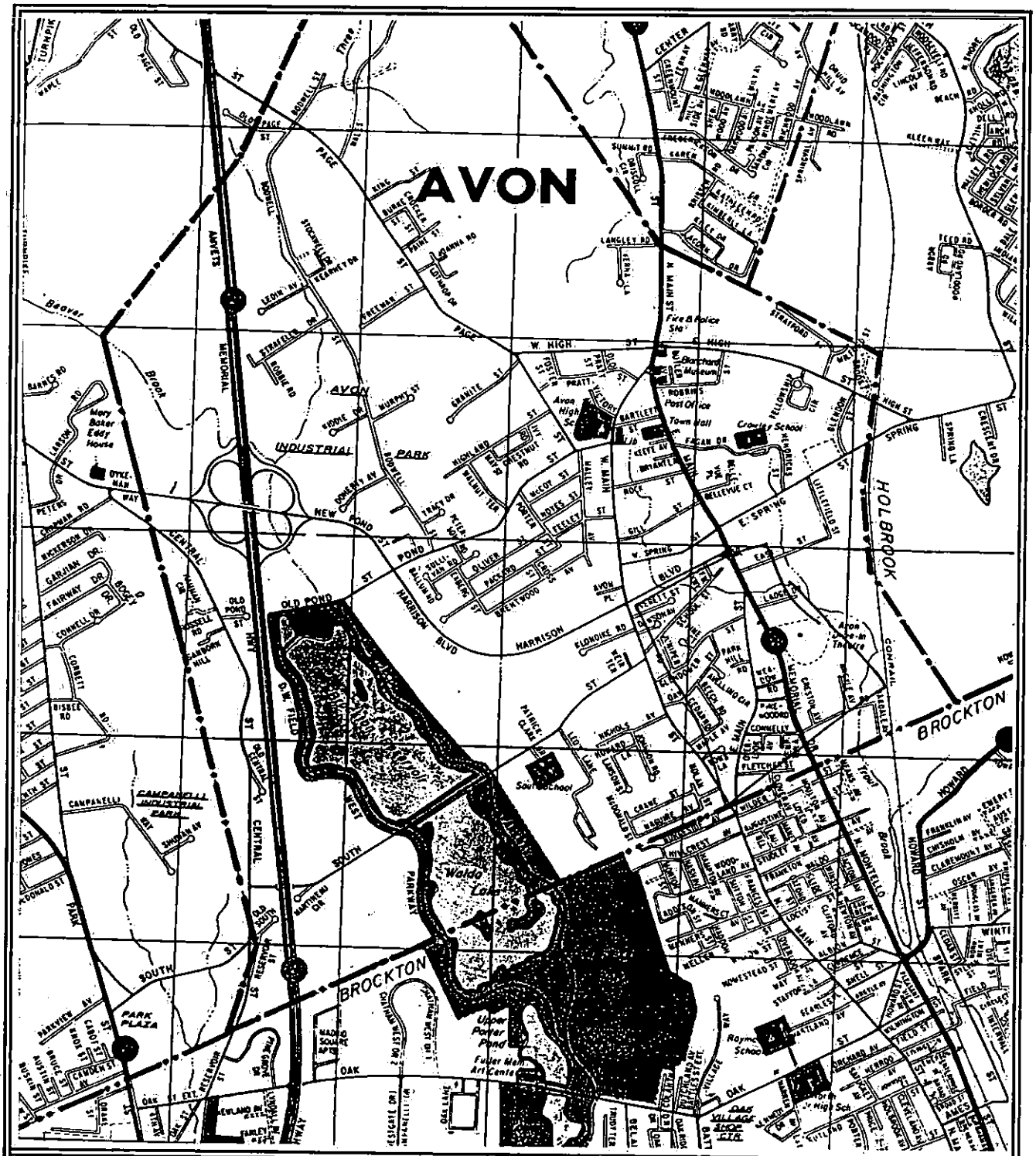
Health/Safety Officer _____

Project Manager _____

Contractor #1 Representative MEL

Contractor #2 Representative _____

Other Site Personnel _____



CONECO ENVIRONMENTAL

Hospital Emergency Route Map

Material Safety Data Sheet

From Genium's Reference Collection
Genium Publishing Corporation
1145 Catalyn Street
Schenectady, NY 12303-1836 USA
(518) 377-8855

GENIUM PUBLISHING CORP.

No. 312
TRICHLOROETHYLENE
(Revision E)

Issued: July 1979
Revised: August 1987

SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: TRICHLOROETHYLENE

DESCRIPTION (Origin/Uses): Prepared from *sym*-tetrachloroethane by way of eliminating HCl by boiling with lime. Used to manufacture organic chemicals, pharmaceuticals; in degreasing and dry cleaning; and as a solvent for fats, waxes, rubbers, oils, paints, varnishes, ethers, and cellulose esters.

OTHER DESIGNATIONS: Ethylene Trichloride; TCE; Trichloroethene; 1,1,2-Trichloroethylene; C_2HCl_3; NIOSH *RTECS* #KX4550000; CAS #0079-01-6

MANUFACTURER/SUPPLIER: Available from several suppliers, including:
Dow Chemical USA, 2020 Dow Center, Midland, MI 48640;
Telephone: (517) 636-1000; (800) 258-CHEM

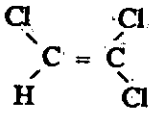
COMMENTS: Trichloroethylene is a toxic solvent and a suspected occupational carcinogen.

HMIS			
H	2	R	1
F	1	I	3
R	1	S	1
PPE*		K	0

* See sect. 8

SECTION 2. INGREDIENTS AND HAZARDS

Ingredients	%	HAZARD DATA
Trichloroethylene, CAS #0079-01-6; NIOSH *RTECS* #KX4550000	100	ACGIH Values 1987-88 TLV-TWA*: 50 ppm, 270 mg/m^3 TLV-STEL**: 200 ppm, 1080 mg/m^3 OSHA PEL 1986*** 8-Hr TWA: 100 ppm Ceiling: 200 ppm NIOSH REL 1986 10-Hr TWA: 25 ppm TOXICITY DATA Human, Oral, LD_{Lo}: 7 g/kg Human, Inhalation, TC_{Lo}: 6900 mg/m^3 (10 Min) Human, Inhalation, TC_{Lo}: 160 ppm/83 Min Human, Inhalation, TD_{Lo}: 812 mg/kg



* The TLV-TWA is set to control subjective complaints such as headache, fatigue, and irritability.

** The TLV-STEL is set to prevent incoordination and other beginning anesthetic effects from TCE. These levels should provide a wide margin of safety in preventing liver injury.

*** The OSHA PEL is 300 ppm for 5 minutes in any 2 hours.

SECTION 3. PHYSICAL DATA

Boiling Point ... 188.6°F (87°C)
Vapor Pressure ... 58 Torr at 68°F (20°C)
Water Solubility ... Insoluble
Vapor Density (Air = 1) ... 4.53

Evaporation Rate ... Not Listed
Specific Gravity ... 1.4649 at 68°F (20°C)
Melting Point ... -120.64°F (-84.8°C)
Molecular Weight ... 131.40 Grams/Mole

Appearance and odor: Colorless, nonflammable mobile liquid; sweetish odor like chloroform.

COMMENTS: TCE is highly soluble in lipids. A high vapor pressure at room temperature provides the potential for TCE vapors to contaminate use areas.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temperature	Flammability Limits in Air	LOWER	UPPER
Not Listed	770°F (410°C)	% by Volume	8%	10.5%

EXTINGUISHING MEDIA: TCE has no flash point in a conventional closed tester at room temperature, but it is moderately flammable at higher temperatures. Use dry chemical, carbon dioxide, alcohol foam, or other extinguishing agents suitable for the surrounding fire.

OSHA Flammability Class (29 CFR 1910.106): Not Regulated

UNUSUAL FIRE/EXPLOSION HAZARDS: During fire conditions TCE emits highly toxic and irritating fumes, including hydrochloric acid and phosgene. SPECIAL FIRE-FIGHTING PROCEDURES: Wear a self-contained breathing apparatus with a full facepiece operated in a pressure-demand or another positive-pressure mode. At TCE vapor levels of 300-1000 ppm, fire fighters who lack the proper respiratory equipment may experience incoordination and impaired judgment.

DOT Flammability Class (49 CFR 173.115): Not Regulated

SECTION 5. REACTIVITY DATA

Trichloroethylene is stable. Hazardous polymerization can occur under certain circumstances (see Conditions to Avoid and Comments, below).

CHEMICAL INCOMPATIBILITIES include magnesium or aluminum powder, NaOH, KOH, or other strong alkaline materials. Reactions with alkaline materials may lead to the formation of dangerous explosive mixtures of chloroacetylenes.

CONDITIONS TO AVOID: When TCE is heated (as in the case with vapor degreasers) or exposed to sunlight, it requires extra stabilization against oxidation, degradation, and polymerization. It is slowly decomposed by light when moist.

PRODUCTS OF HAZARDOUS DECOMPOSITION include hydrochloric acid and phosgene under certain conditions at elevated temperatures.

COMMENTS: TCE is stable under normal handling and storage conditions, and hazardous polymerization is not expected to occur. However, failure of the stabilizer at elevated temperatures or other extreme conditions may allow polymerization to take place.

SECTION 6. HEALTH HAZARD INFORMATION

Trichloroethylene is listed as a carcinogen by the NTP, IARC, and OSHA. NIOSH recommends that trichloroethylene be treated as an occupational carcinogen. IARC carcinogenic results are animal suspect, animal positive, and human indefinite. SUMMARY OF RISKS: Moderate exposures to TCE cause symptoms similar to those of alcohol inebriation. Higher concentrations cause narcotic effects. Ventricular fibrillation has been cited as the cause of death following heavy exposures. TCE-induced hepato cellular carcinomas have been detected in mice during tests conducted by the National Cancer Institute (*Chem & Eng News* 54 [April 5, 1976]:4). Organ systems affected by overexposure to TCE are the central nervous system (euphoria, analgesia, anesthesia), degeneration of the liver and kidneys, the lungs (tachypnea), heart (arrhythmia) and skin (irritation, vesication, and paralysis of fingers when immersed in liquid TCE). Contact with the liquid defats the skin, causing topical dermatitis. Certain people appear to experience synergistic effects from TCE exposure concomitant with exposure to caffeine, alcohol, and other drugs. When combined with alcohol intake, toxic effects are increased and may cause a red, blotchy facial and upper body rash commonly called "degreaser's flush." Other reported symptoms of TCE exposure include abnormal fatigue, headache, irritability, gastric disturbances, and intolerance to alcohol. Toxic effects from testing of TCE on humans include hallucination, distorted perception, somnolence (general depressed activity), and jaundice. TARGET ORGANS: Respiratory system, central nervous system, heart, liver, kidneys, and skin. PRIMARY ENTRY: Ingestion, inhalation, skin contact. ACUTE EFFECTS: Headache, vertigo, visual disturbance, tremors, nausea, vomiting, dermatitis, dizziness, drowsiness, and irritation to the eyes, nose, and throat. CHRONIC EFFECTS: None Reported. MEDICAL CONDITIONS AGGRAVATED BY LONG-TERM EXPOSURE: Diseases of the liver, kidneys, lungs, and central nervous system. FIRST AID: EYE CONTACT: Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. Get medical help.* SKIN CONTACT: Wash thoroughly with soap and water. Remove and launder contaminated clothing before wearing it again; clean material from shoes and equipment. Get medical help.* INHALATION: Remove victim to fresh air; restore and/or support his breathing as needed. Do not give adrenalin to the victim. Get medical help.* INGESTION: Call a poison control center. Never give anything by mouth to someone who is unconscious or convulsing. A professional decision regarding whether or not to induce vomiting is required. Do not give adrenalin to the victim. Get medical help.*

*GET MEDICAL ASSISTANCE – IN PLANT, PARAMEDIC, COMMUNITY. Get prompt medical assistance for further treatment, observation, and support after first aid.

COMMENTS: Workers' responses to TCE vary significantly because of many factors, including age, health status, nutrition, and intake of alcohol, caffeine, and medicines. Do not use these substances before, during, or after exposure to TCE. If a worker displays any of the symptoms of exposure to TCE, thoroughly investigate all the possible contributing factors to determine, if possible, how much the work environment levels of TCE are responsible.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

SPILL/LEAK: Inform safety personnel of any trichloroethylene spill or leak and evacuate the area for large spills. Cleanup personnel must use respiratory and liquid contact protection. Adequate ventilation must be provided. Confine the spilled TCE to as small an area as possible. Do not allow it to run off to sewers or open waterways. Pick up spilled TCE with a vacuum cleaner or an absorbent such as vermiculite.

DISPOSAL: Consider reclamation, recycling, or destruction rather than disposal in a landfill.

Trichloroethylene is designated as a hazardous substance by the EPA (40 CFR 116.4).

Trichloroethylene is reported in the 1983 EPA TSCA Inventory.

EPA Hazardous Waste Number (40 CFR 261.33): U228

EPA Reportable Quantity (40 CFR 117.3): 1000 lbs (454 kgs)

Aquatic Toxicity Rating, TLm 96: Not Listed

SECTION 8. SPECIAL PROTECTION INFORMATION

GOGGLES: Always wear protective eyeglasses or chemical safety goggles. Follow the eye and face protection guidelines of 29 CFR 1910.133. GLOVES: Wear impervious gloves. RESPIRATOR: Use a NIOSH-approved respirator per the *NIOSH Guide to Chemical Hazards* (Genium ref. 88) for the maximum-use concentrations and/or the exposure limits cited in section 2. Follow the respirator guidelines in 29 CFR 1910.134. Any detectable concentration of TCE requires an SCBA, full facepiece, and pressure-demand/positive-pressure modes. WARNING: Air-purifying respirators will not protect workers from oxygen-deficient atmospheres. OTHER EQUIPMENT: Wear rubber boots, aprons, and other suitable body protection appropriate to the existing work environment. VENTILATION: Install and operate general and local exhaust ventilation systems of sufficient power to maintain airborne concentrations of TCE below the OSHA PEL standards cited in section 2. SAFETY STATIONS: Make eyewash stations, washing facilities, and safety showers available in areas of use and handling. Contact lenses pose a special hazard; soft lenses may absorb irritants, and all lenses concentrate them. OTHER SPECIAL MODIFICATIONS IN THE WORKPLACE: Because of the unresolved controversy about the carcinogenic status of TCE, all existing personal protective equipment and engineering technology should be used to prevent any possibility of worker contact with this material.

COMMENTS: Practice good personal hygiene. Keep material off of your clothes and equipment. Avoid transfer of material from hands to mouth while eating, drinking, or smoking. Adhere to the sanitation requirements of 29 CFR 1910.141 and 29 CFR 1910.142.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

STORAGE SEGREGATION: Prevent TCE from coming into contact with strong caustics such as NaOH; KOH; chemically active metal like Ba, Li, Na, Mg, Ti; and powdered aluminum or magnesium in acidic solutions. SPECIAL HANDLING/STORAGE: Store this material in a cool, dry, well-ventilated area. Avoid elevated temperatures because products of toxic and corrosive decomposition from TCE may form. Monitor the level of any stabilizer component that may be added to the TCE. (Consult the technical data from the supplier to determine the specifics of any added stabilizer.) If applicable, follow the supplier's recommendation concerning proper rotation of stock, shelf-life requirements, and levels of stabilizers.

ENGINEERING CONTROLS IN THE WORKPLACE: Avoid collecting aluminum fines (very small particles) or chips in a TCE vapor degreaser. Monitor TCE stabilizer levels regularly. Only trained personnel should operate vapor degreasers.

TRANSPORTATION DATA (per 49 CFR 172.101-2):

DOT Hazard Class: ORM-A | DOT ID No. UN1710 | IMO Class: 6.1

IMO Label: St. Andrew's Cross (X)* | DOT Shipping Name: Trichloroethylene | DOT Label: None

* Harmful - Stow away from foodstuffs (IMO Label, Materials of Class 6.1 Packaging Group III).

References: 1-9, 12, 14, 21, 73, 87-94. PI

Approvals JPRaccaco

Indust. Hygiene/Safety JW

Medical Review MHarrison

Material Safety Data Sheet

from Genium's Reference Collection
Genium Publishing Corporation
1145 Catalyn Street
Schenectady, NY 12303-1836 USA
(518) 377-8855

GENIUM PUBLISHING CORP.

No. 311

METHYL CHLOROFORM
(Revision E)
Issued: November 1975
Revised: November 1988

SECTION 1. MATERIAL IDENTIFICATION

27

Material Name: METHYL CHLOROFORM

Description (Origin/Uses): Used in cold-type metal cleaning; also in cleaning plastic molds.

Other Designations: 1,1,1-Trichloroethane; CH_3CCl_3; CAS No. 0071-55-6

Manufacturer: Contact your supplier or distributor. Consult the latest edition of the *Chemicalweek Buyers' Guide* (Genium ref. 73) for a list of suppliers.

HMIS
H 2
F 0
R 1
PPG*
*See sect. 8

R 1
I –
S 2
K 1

NFPA

SECTION 2. INGREDIENTS AND HAZARDS/EXPOSURE LIMITS

Methyl Chloroform, CAS No. 0071-55-6

OSHA PELs
8-Hr TWA: 350 ppm, 1900 mg/m³
STEL: 450 ppm, 2450 mg/m³

ACGIH TLVs, 1988-89
TLV-TWA: 350 ppm, 1900 mg/m³
TLV-STEL: 450 ppm, 2450 mg/m³

Toxicity Data**
Man, Inhalation, LC_{Lo}: 27 g/m³ (10 Mins)
Man, Inhalation, TC_{Lo}: 350 ppm
Human, Oral, TD_{Lo}: 670 mg/kg
Rat, Oral, LD_{50}: 10300 mg/kg

*Contact your supplier for specifications, including details about inhibitors that can be added to the methyl chloroform product.
**See NIOSH, *RTECS* (KJ2975000), for additional data with references to irritative, reproductive, and mutagenic effects.

SECTION 3. PHYSICAL DATA

Boiling Point: 165°F (74.1°C)
Melting Point: -26.5°F (-32.5°C)
Vapor Density (Air = 1): 4.55
Vapor Pressure: 100 Torrs at 68°F (20°C)
Molecular Weight: 133 Grams/Mole
Solubility in Water (%): Insoluble
Specific Gravity (H_2O = 1): 1.3376 at 68°F (20°C)
% Volatile by Volume: Ca 100

Appearance and Odor: A colorless liquid; mild, sweetish, pleasant, etherlike odor that may be just perceptible (if unfatigued) at about 100 ppm in the air.

Comments: Small variations in the above-noted physical properties are expected because of the various inhibitors that may be included in the methyl chloroform product.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point: None Found	Autoignition Temperature: 998°F (537°C)	LEL: 8.0% v/v	UEL: 10.5% v/v

Extinguishing Media: Methyl chloroform does not burn at ordinary temperatures. High-energy sources such as an electric arc or an elevated temperature are required for ignition of this material. When the source of ignition is removed, methyl chloroform tends to stop burning. Use water spray to cool fire-exposed containers. Use water fog, carbon dioxide, dry chemical, or foam to fight fires involving this material or nearby fires. **Unusual Fire or Explosion Hazards:** Methyl chloroform vapor is heavier than air and may travel a considerable distance to a low-lying high-energy source of ignition and flash back to its origin. Use care in selecting equipment (see sect. 5, Comments). **Special Fire-fighting Procedures:** Wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode.

SECTION 5. REACTIVITY DATA

Stability/Polymerization: Methyl chloroform is stable in closed containers during routine operations. Hazardous polymerization cannot occur. **Chemical Incompatibilities:** Methyl chloroform can react dangerously with acetone, nitrogen tetroxide, oxygen (gas or liquid), sodium, sodium hydroxide, and sodium-potassium alloys. **Conditions to Avoid:** Avoid exposure to any high-energy source of ignition or to incompatible chemicals. **Hazardous Products of Decomposition:** Toxic and corrosive gases such as hydrogen chloride, dichloracetylene, chlorine, and phosgene can be produced by decomposition of methyl chloroform at high temperatures, contact with hot metals, or exposure to ultraviolet radiation. Phosgene is usually produced in very small quantities; however, the significant irritating properties of hydrogen chloride (the dominant product of decomposition) prevent significant exposure to the phosgene. **Comments:** This material can be hydrolyzed by water to form hydrochloric acid and acetic acid. It will react with strong caustics to form flammable or explosive materials. It attacks natural rubber. Methyl chloroform requires an inhibitor content to prevent corrosion of metals. When the inhibitor is depleted, this material can decompose rapidly by reaction with finely divided white metals such as aluminum, magnesium, or zinc. Do not use these metals in pressurized spraying equipment where methyl chloroform is involved.

SECTION 6. HEALTH HAZARD INFORMATION

Carcinogenicity: Methyl chloroform is not listed as a carcinogen by the NTP, IARC, or OSHA.
Summary of Risks: Methyl chloroform exhibits low oral toxicity. It can defat the exposed skin of workers and cause redness and scaling. Although methyl chloroform is low in systemic toxicity, it is an anesthetic that is capable of causing death if it is inhaled at concentrations of 14000 to 15000 ppm. Fatalities that have occurred in poorly ventilated areas such as pits or tanks are attributed to anesthesia and/or sensitization of the myocardium to epinephrine. Quick and complete recovery is reported upon prompt removal of unconscious exposed persons from the area of exposure. The TLV-TWA cited in section 2 is set to prevent initial anesthetic effects and/or objections to the

SECTION 6. HEALTH HAZARD INFORMATION, cont.

odor. **Medical Conditions Aggravated by Long-Term Exposure:** None reported. **Target Organs:** Skin, eyes, heart, cardiovascular system, and CNS. **Primary Entry:** Inhalation, skin absorption. **Acute Effects:** Headache, lassitude, dermatitis, skin and eye irritation, cardiac arrhythmias, and depression of the CNS. **Chronic Effects:** None reported. **FIRST AID: Eyes.** Immediately flush eyes, including under the eyelids, gently but thoroughly with flooding amounts of running water for at least 15 minutes. **Skin.** Rinse the affected area with flooding amounts of water, then wash it with soap and water. **Inhalation.** Remove the exposed person to fresh air; restore and/or support his or her breathing as needed. Have qualified medical personnel administer oxygen as required. **Ingestion.** Unlikely. Should this type of exposure occur, medical help is not readily available, and the amount swallowed was appreciable, give the exposed person milk of magnesia to drink and induce vomiting. Repeat this procedure. Aspiration hazards exist, so the decision whether or not to induce vomiting must be made carefully. If vomiting is to be induced, carry it out as quickly as possible before the ingested methyl chloroform is internally absorbed. This procedure would increase the chance of aspiration. **Get medical help (in plant, paramedic, community) for all exposures.** Seek prompt medical assistance for further treatment, observation, and support after first aid. **Note to Physician:** The estimated lethal dose by ingestion for a man weighing 150 pounds is 0.5 to 1 pint. Do not use adrenalin or sympathomimetic amines in treatment because of the increased cardiac sensitivity involved. Ingestion may cause spontaneous vomiting.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill/Leak: Notify safety personnel, evacuate unnecessary personnel, eliminate all sources of ignition immediately, and provide adequate explosion-proof ventilation. Cleanup personnel need protection against skin or eye contact with this liquid as well as inhalation of its vapor (see sect. 8). Contain large spills and collect or absorb waste with an inert material such as sand, earth, or vermiculite. Use nonsparking tools to place liquid or absorbent waste into closable containers for disposal. Keep waste out of sewers, watersheds, and waterways. **Waste Disposal:** Contact your supplier or a licensed contractor for detailed recommendations. Follow Federal, state, and local regulations.

OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000 Subpart Z).
EPA Designations (40 CFR 302.4)
RCRA Hazardous Waste, No. U226
CERCLA Hazardous Substance, Reportable Quantity: 1000 lbs (454 kg), per the Resource Conservation and Recovery Act, § 3001.

SECTION 8. SPECIAL PROTECTION INFORMATION

Goggles: Always wear protective eyeglasses or chemical safety goggles. Where splashing is possible, wear a full face shield. Follow OSHA eye- and face-protection regulations (29 CFR 1910.133). **Respirator:** Use a NIOSH-approved respirator per Genium reference 88 for the maximum-use concentrations and/or the exposure limits cited in section 2. Follow OSHA respirator regulations (29 CFR 1910.134). For emergency or nonroutine operations (spills or cleaning reactor vessels and storage tanks), wear an SCBA. **Warning:** Air-purifying respirators will *not* protect workers in oxygen-deficient atmospheres. **Other:** Wear impervious gloves, boots, aprons, and gauntlets, etc., to prevent prolonged or repeated skin contact with this material. Suggested materials include neoprene, polyvinyl alcohol, or polyethylene. Natural rubber is not recommended. **Ventilation:** Install and operate general and local maximum, explosion-proof ventilation systems powerful enough to maintain airborne levels of this material below the OSHA PEL standard cited in section 2. Local exhaust ventilation is preferred because it prevents dispersion of the contaminant into the general work area by eliminating it at its source. Consult the latest edition of Genium reference 103 for detailed recommendations. **Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work areas. **Contaminated Equipment:** Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. Do *not* wear contact lenses in any work area. Remove contaminated clothing and launder it before wearing it again; clean this material from your shoes and equipment. **Other:** Exercise care in the selection of safety and handling equipment because methyl chloroform attacks natural rubber. **Comments:** Practice good personal hygiene; always wash thoroughly after using this material. Keep it off your clothing and equipment. Avoid transferring it from your hands to your mouth while eating, drinking, or smoking. Do *not* eat, drink, or smoke in any work area. Do not inhale methyl chloroform vapor. Consider functions of the CVS, CNS, liver, and skin while administering preplacement and periodic medical exams.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Storage/Segregation: Store methyl chloroform in closed containers in a cool, dry, well-ventilated area away from sources of ignition and incompatible chemicals (see sect. 5). Protect containers from physical damage. Steel is a recommended material for storage containers. **Special Handling/Storage:** Prevent moisture contamination of storage facilities. Monitor levels of inhibitor. Use caution in cleaning operations involving white metal fines (see sect. 5). **Engineering Controls:** Make sure all engineering systems (production, transportation) are of maximum, explosion-proof design. Electrically ground and bond all containers and pipelines, etc., used in shipping, transferring, reacting, production, and sampling operations to prevent generating static sparks. **Other:** Personnel who regularly work with methyl chloroform should avoid drinking alcoholic beverages shortly before, during, or after exposure.

Transportation Data (49 CFR 172.101-2)

DOT Shipping Name: 1,1,1-Trichloroethane
DOT Hazard Class: ORM-A
ID No. UN2831
DOT Packaging Requirements: 49 CFR 173.605
DOT Packaging Exceptions: 49 CFR 173.605

IMO Shipping Name: 1,1,1-Trichloromethane
IMO Hazard Class: 6.1
IMO Label: Saint Andrew's Cross (X)*
IMDG Packaging Group: III

*Harmful-Stow away from Foodstuffs (Materials of Class 6.1 Packaging Group III).

References: 1, 38, 84-94, 116, 117, 120, 122.

Prepared by PJ Igoe, BS
Industrial Hygiene Review: DJ Wilson, CIH
Medical Review: MJ Hardies, MD

Material Safety Data Sheet

From Genium's Reference Collection
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GENUM PUBLISHING CORP.

No. 312
TRICHLOROETHYLENE
(Revision E)

Issued: July 1979
Revised: August 1987

SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: TRICHLOROETHYLENE

DESCRIPTION (Origin/Uses): Prepared from *sym*-tetrachloroethane by way of eliminating HCl by boiling with lime. Used to manufacture organic chemicals, pharmaceuticals; in degreasing and dry cleaning; and as a solvent for fats, waxes, rubbers, oils, paints, varnishes, ethers, and cellulose esters.

OTHER DESIGNATIONS: Ethylene Trichloride; TCE; Trichloroethene; 1,1,2-Trichloroethylene; C_2HCl_3; NIOSH *RTECS* #KX4550000; CAS #0079-01-6

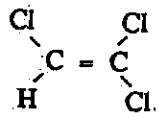
MANUFACTURER/SUPPLIER: Available from several suppliers, including:
Dow Chemical USA, 2020 Dow Center, Midland, MI 48640;
Telephone: (517) 636-1000; (800) 258-CHEM

COMMENTS: Trichloroethylene is a toxic solvent and a suspected occupational carcinogen.

HMIS
H 2
F 1
R 1
PPE*
* See sect. 8

R 1
I 3
S 1
K 0

SECTION 2. INGREDIENTS AND HAZARDS

Trichloroethylene, CAS #0079-01-6; NIOSH *RTECS* #KX4550000	%	HAZARD DATA
	100	ACGIH Values 1987-88 TLV-TWA*: 50 ppm, 270 mg/m^3 TLV-STEL**: 200 ppm, 1080 mg/m^3 OSHA PEL 1986*** 8-Hr TWA: 100 ppm Ceiling: 200 ppm NIOSH REL 1986 10-Hr TWA: 25 ppm TOXICITY DATA Human, Oral, LD_{Lo}: 7 g/kg Human, Inhalation, TC_{Lo}: 6900 mg/m^3 (10 Min) Human, Inhalation, TC_{Lo}: 160 ppm/83 Min Human, Inhalation, TD_{Lo}: 812 mg/kg

* The TLV-TWA is set to control subjective complaints such as headache, fatigue, and irritability.
** The TLV-STEL is set to prevent incoordination and other beginning anesthetic effects from TCE. These levels should provide a wide margin of safety in preventing liver injury.
*** The OSHA PEL is 300 ppm for 5 minutes in any 2 hours.

SECTION 3. PHYSICAL DATA

Boiling Point ... 188.6°F (87°C)
Vapor Pressure ... 58 Torr at 68°F (20°C)
Water Solubility ... Insoluble
Vapor Density (Air = 1) ... 4.53
Evaporation Rate ... Not Listed
Specific Gravity ... 1.4649 at 68°F (20°C)
Melting Point ... -120.64°F (-84.8°C)
Molecular Weight ... 131.40 Grams/Mole

Appearance and odor: Colorless, nonflammable mobile liquid; sweetish odor like chloroform.

COMMENTS: TCE is highly soluble in lipids. A high vapor pressure at room temperature provides the potential for TCE vapors to contaminate use areas.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temperature	Flammability Limits in Air	LOWER	UPPER
Not Listed	770°F (410°C)	% by Volume	8%	10.5%

EXTINGUISHING MEDIA: TCE has no flash point in a conventional closed tester at room temperature, but it is moderately flammable at higher temperatures. Use dry chemical, carbon dioxide, alcohol foam, or other extinguishing agents suitable for the surrounding fire.

OSHA Flammability Class (29 CFR 1910.106): Not Regulated

UNUSUAL FIRE/EXPLOSION HAZARDS: During fire conditions TCE emits highly toxic and irritating fumes, including hydrochloric acid and phosgene. SPECIAL FIRE-FIGHTING PROCEDURES: Wear a self-contained breathing apparatus with a full facepiece operated in a pressure-demand or another positive-pressure mode. At TCE vapor levels of 300-1000 ppm, fire fighters who lack the proper respiratory equipment may experience incoordination and impaired judgment.

DOT Flammability Class (49 CFR 173.115): Not Regulated

SECTION 5. REACTIVITY DATA

Trichloroethylene is stable. Hazardous polymerization can occur under certain circumstances (see Conditions to Avoid and Comments, below).

CHEMICAL INCOMPATIBILITIES include magnesium or aluminum powder, NaOH, KOH, or other strong alkaline materials. Reactions with alkaline materials may lead to the formation of dangerous explosive mixtures of chloroacetylenes.

CONDITIONS TO AVOID: When TCE is heated (as in the case with vapor degreasers) or exposed to sunlight, it requires extra stabilization against oxidation, degradation, and polymerization. It is slowly decomposed by light when moist.

PRODUCTS OF HAZARDOUS DECOMPOSITION include hydrochloric acid and phosgene under certain conditions at elevated temperatures.

COMMENTS: TCE is stable under normal handling and storage conditions, and hazardous polymerization is not expected to occur. However, failure of the stabilizer at elevated temperatures or other extreme conditions may allow polymerization to take place.

SECTION 6. HEALTH HAZARD INFORMATION

Trichloroethylene is listed as a carcinogen by the NTP, IARC, and OSHA. NIOSH recommends that trichloroethylene be treated as an occupational carcinogen. IARC carcinogenic results are animal suspect, animal positive, and human indefinite. SUMMARY OF RISKS: Moderate exposures to TCE cause symptoms similar to those of alcohol inebriation. Higher concentrations cause narcotic effects. Ventricular fibrillation has been cited as the cause of death following heavy exposures. TCE-induced hepato cellular carcinomas have been detected in mice during tests conducted by the National Cancer Institute (*Chem & Eng News* 54 [April 5, 1976]:4). Organ systems affected by overexposure to TCE are the central nervous system (euphoria, analgesia, anesthesia), degeneration of the liver and kidneys, the lungs (tachypnea), heart (arrhythmia) and skin (irritation, vesication, and paralysis of fingers when immersed in liquid TCE). Contact with the liquid defats the skin, causing topical dermatitis. Certain people appear to experience synergistic effects from TCE exposure concomitant with exposure to caffeine, alcohol, and other drugs. When combined with alcohol intake, toxic effects are increased and may cause a red, blotchy facial and upper body rash commonly called "degreaser's flush." Other reported symptoms of TCE exposure include abnormal fatigue, headache, irritability, gastric disturbances, and intolerance to alcohol. Toxic effects from testing of TCE on humans include hallucination, distorted perception, somnolence (general depressed activity), and jaundice. TARGET ORGANS: Respiratory system, central nervous system, heart, liver, kidneys, and skin. PRIMARY ENTRY: Ingestion, inhalation, skin contact. ACUTE EFFECTS: Headache, vertigo, visual disturbance, tremors, nausea, vomiting, dermatitis, dizziness, drowsiness, and irritation to the eyes, nose, and throat. CHRONIC EFFECTS: None Reported. MEDICAL CONDITIONS AGGRAVATED BY LONG-TERM EXPOSURE: Diseases of the liver, kidneys, lungs, and central nervous system. FIRST AID: EYE CONTACT: Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. Get medical help.* SKIN CONTACT: Wash thoroughly with soap and water. Remove and launder contaminated clothing before wearing it again; clean material from shoes and equipment. Get medical help.* INHALATION: Remove victim to fresh air; restore and/or support his breathing as needed. Do not give adrenalin to the victim. Get medical help.* INGESTION: Call a poison control center. Never give anything by mouth to someone who is unconscious or convulsing. A professional decision regarding whether or not to induce vomiting is required. Do not give adrenalin to the victim. Get medical help.*

*GET MEDICAL ASSISTANCE - IN PLANT, PARAMEDIC, COMMUNITY. Get prompt medical assistance for further treatment, observation, and support after first aid.

COMMENTS: Workers' responses to TCE vary significantly because of many factors, including age, health status, nutrition, and intake of alcohol, caffeine, and medicines. Do not use these substances before, during, or after exposure to TCE. If a worker displays any of the symptoms of exposure to TCE, thoroughly investigate all the possible contributing factors to determine, if possible, how much the work environment levels of TCE are responsible.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

SPILL/LEAK: Inform safety personnel of any trichloroethylene spill or leak and evacuate the area for large spills. Cleanup personnel must use respiratory and liquid contact protection. Adequate ventilation must be provided. Confine the spilled TCE to as small an area as possible. Do not allow it to run off to sewers or open waterways. Pick up spilled TCE with a vacuum cleaner or an absorbent such as vermiculite.

DISPOSAL: Consider reclamation, recycling, or destruction rather than disposal in a landfill.

Trichloroethylene is designated as a hazardous substance by the EPA (40 CFR 116.4).

Trichloroethylene is reported in the 1983 EPA TSCA Inventory.

EPA Hazardous Waste Number (40 CFR 261.33): U228

EPA Reportable Quantity (40 CFR 117.3): 1000 lbs (454 kgs)

Aquatic Toxicity Rating, TLm 96: Not Listed

SECTION 8. SPECIAL PROTECTION INFORMATION

GOGGLES: Always wear protective eyeglasses or chemical safety goggles. Follow the eye and face protection guidelines of 29 CFR 1910.133. GLOVES: Wear impervious gloves. RESPIRATOR: Use a NIOSH-approved respirator per the *NIOSH Guide to Chemical Hazards* (Genium ref. 88) for the maximum-use concentrations and/or the exposure limits cited in section 2. Follow the respirator guidelines in 29 CFR 1910.134. Any detectable concentration of TCE requires an SCBA, full facepiece, and pressure-demand/positive-pressure modes. WARNING: Air-purifying respirators will not protect workers from oxygen-deficient atmospheres. OTHER EQUIPMENT: Wear rubber boots, aprons, and other suitable body protection appropriate to the existing work environment. VENTILATION: Install and operate general and local exhaust ventilation systems of sufficient power to maintain airborne concentrations of TCE below the OSHA PEL standards cited in section 2. SAFETY STATIONS: Make eyewash stations, washing facilities, and safety showers available in areas of use and handling. Contact lenses pose a special hazard; soft lenses may absorb irritants, and all lenses concentrate them. OTHER SPECIAL MODIFICATIONS IN THE WORKPLACE: Because of the unresolved controversy about the carcinogenic status of TCE, all existing personal protective equipment and engineering technology should be used to prevent any possibility of worker contact with this material.

COMMENTS: Practice good personal hygiene. Keep material off of your clothes and equipment. Avoid transfer of material from hands to mouth while eating, drinking, or smoking. Adhere to the sanitation requirements of 29 CFR 1910.141 and 29 CFR 1910.142.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

STORAGE SEGREGATION: Prevent TCE from coming into contact with strong caustics such as NaOH; KOH; chemically active metal like Ba, Li, Na, Mg, Ti; and powdered aluminum or magnesium in acidic solutions. SPECIAL HANDLING/STORAGE: Store this material in a cool, dry, well-ventilated area. Avoid elevated temperatures because products of toxic and corrosive decomposition from TCE may form. Monitor the level of any stabilizer component that may be added to the TCE. (Consult the technical data from the supplier to determine the specifics of any added stabilizer.) If applicable, follow the supplier's recommendation concerning proper rotation of stock, shelf-life requirements, and levels of stabilizers.

ENGINEERING CONTROLS IN THE WORKPLACE: Avoid collecting aluminum fines (very small particles) or chips in a TCE vapor degreaser. Monitor TCE stabilizer levels regularly. Only trained personnel should operate vapor degreasers.

TRANSPORTATION DATA (per 49 CFR 172.101-2):

DOT Hazard Class: ORM-A

DOT ID No. UN1710

IMO Class: 6.1

IMO Label: St. Andrew's Cross (X)*

DOT Shipping Name: Trichloroethylene

DOT Label: None

* Harmful - Stow away from foodstuffs (IMO Label, Materials of Class 6.1 Packaging Group III).

References: 1-9, 12, 14, 21, 73, 87-94, PI

Approvals DiRocco

Indust. Hygiene/Safety

Medical Review

Material Safety Data Sheet

from Genium's Reference Collection
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GENIUM PUBLISHING CORP.

No. 311

METHYL CHLOROFORM
(Revision E)
Issued: November 1975
Revised: November 1988

SECTION 1. MATERIAL IDENTIFICATION

27

Material Name: METHYL CHLOROFORM

Description (Origin/Uses): Used in cold-type metal cleaning; also in cleaning plastic molds.

Other Designations: 1,1,1-Trichloroethane; CH_3CCl_3; CAS No. 0071-55-6

Manufacturer: Contact your supplier or distributor. Consult the latest edition of the *Chemicalweek Buyers' Guide* (Genium ref. 73) for a list of suppliers.

HMIS
H 2
F 0
R 1
PPG*
*See sect. 8

R 1
I –
S 2
K 1

NFPA

SECTION 2. INGREDIENTS AND HAZARDS/EXPOSURE LIMITS

Methyl Chloroform, CAS No. 0071-55-6

OSHA PELs
8-Hr TWA: 350 ppm, 1900 mg/m³
STEL: 450 ppm, 2450 mg/m³

ACGIH TLVs, 1988-89
TLV-TWA: 350 ppm, 1900 mg/m³
TLV-STEL: 450 ppm, 2450 mg/m³

Toxicity Data**
Man, Inhalation, LC_{Lo}: 27 g/m³ (10 Mins)
Man, Inhalation, TC_{Lo}: 350 ppm
Human, Oral, TD_{Lo}: 670 mg/kg
Rat, Oral, LD_{50}: 10300 mg/kg

*Contact your supplier for specifications, including details about inhibitors that can be added to the methyl chloroform product.
**See NIOSH, *RTECS* (KJ2975000), for additional data with references to irritative, reproductive, and mutagenic effects.

SECTION 3. PHYSICAL DATA

Boiling Point: 165°F (74.1°C)
Melting Point: -26.5°F (-32.5°C)
Vapor Density (Air = 1): 4.55
Vapor Pressure: 100 Torrs at 68°F (20°C)

Molecular Weight: 133 Grams/Mole
Solubility in Water (%): Insoluble
Specific Gravity (H_2O = 1): 1.3376 at 68°F (20°C)
% Volatile by Volume: Ca 100

Appearance and Odor: A colorless liquid; mild, sweetish, pleasant, etherlike odor that may be just perceptible (if unfatigued) at about 100 ppm in the air.

Comments: Small variations in the above-noted physical properties are expected because of the various inhibitors that may be included in the methyl chloroform product.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point: None Found	Autoignition Temperature: 998°F (537°C)	LEL: 8.0% v/v	UEL: 10.5% v/v

Extinguishing Media: Methyl chloroform does not burn at ordinary temperatures. High-energy sources such as an electric arc or an elevated temperature are required for ignition of this material. When the source of ignition is removed, methyl chloroform tends to stop burning. Use water spray to cool fire-exposed containers. Use water fog, carbon dioxide, dry chemical, or foam to fight fires involving this material or nearby fires. **Unusual Fire or Explosion Hazards:** Methyl chloroform vapor is heavier than air and may travel a considerable distance to a low-lying high-energy source of ignition and flash back to its origin. Use care in selecting equipment (see sect. 5, Comments). **Special Fire-fighting Procedures:** Wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode.

SECTION 5. REACTIVITY DATA

Stability/Polymerization: Methyl chloroform is stable in closed containers during routine operations. Hazardous polymerization cannot occur. **Chemical Incompatibilities:** Methyl chloroform can react dangerously with acetone, nitrogen tetroxide, oxygen (gas or liquid), sodium, sodium hydroxide, and sodium-potassium alloys. **Conditions to Avoid:** Avoid exposure to any high-energy source of ignition or to incompatible chemicals. **Hazardous Products of Decomposition:** Toxic and corrosive gases such as hydrogen chloride, dichloracetylene, chlorine, and phosgene can be produced by decomposition of methyl chloroform at high temperatures, contact with hot metals, or exposure to ultraviolet radiation. Phosgene is usually produced in very small quantities; however, the significant irritating properties of hydrogen chloride (the dominant product of decomposition) prevent significant exposure to the phosgene. **Comments:** This material can be hydrolyzed by water to form hydrochloric acid and acetic acid. It will react with strong caustics to form flammable or explosive materials. It attacks natural rubber. Methyl chloroform requires an inhibitor content to prevent corrosion of metals. When the inhibitor is depleted, this material can decompose rapidly by reaction with finely divided white metals such as aluminum, magnesium, or zinc. Do not use these metals in pressurized spraying equipment where methyl chloroform is involved.

SECTION 6. HEALTH HAZARD INFORMATION

Carcinogenicity: Methyl chloroform is not listed as a carcinogen by the NTP, IARC, or OSHA.

Summary of Risks: Methyl chloroform exhibits low oral toxicity. It can defat the exposed skin of workers and cause redness and scaling. Although methyl chloroform is low in systemic toxicity, it is an anesthetic that is capable of causing death if it is inhaled at concentrations of 14000 to 15000 ppm. Fatalities that have occurred in poorly ventilated areas such as pits or tanks are attributed to anesthesia and/or sensitization of the myocardium to epinephrine. Quick and complete recovery is reported upon prompt removal of unconscious exposed persons from the area of exposure. The TLV-TWA cited in section 2 is set to prevent initial anesthetic effects and/or objections to the

SECTION 6. HEALTH HAZARD INFORMATION, cont.

odor. **Medical Conditions Aggravated by Long-Term Exposure:** None reported. **Target Organs:** Skin, eyes, heart, cardiovascular system, and CNS. **Primary Entry:** Inhalation, skin absorption. **Acute Effects:** Headache, lassitude, dermatitis, skin and eye irritation, cardiac arrhythmias, and depression of the CNS. **Chronic Effects:** None reported. **FIRST AID: Eyes.** Immediately flush eyes, including under the eyelids, gently but thoroughly with flooding amounts of running water for at least 15 minutes. **Skin.** Rinse the affected area with flooding amounts of water, then wash it with soap and water. **Inhalation.** Remove the exposed person to fresh air; restore and/or support his or her breathing as needed. Have qualified medical personnel administer oxygen as required. **Ingestion.** Unlikely. Should this type of exposure occur, medical help is not readily available, and the amount swallowed was appreciable, give the exposed person milk of magnesia to drink and induce vomiting. Repeat this procedure. Aspiration hazards exist, so the decision whether or not to induce vomiting must be made carefully. If vomiting is to be induced, carry it out as quickly as possible before the ingested methyl chloroform is internally absorbed. This procedure would increase the chance of aspiration. **Get medical help (in plant, paramedic, community) for all exposures.** Seek prompt medical assistance for further treatment, observation, and support after first aid. **Note to Physician:** The estimated lethal dose by ingestion for a man weighing 150 pounds is 0.5 to 1 pint. Do not use adrenalin or sympathomimetic amines in treatment because of the increased cardiac sensitivity involved. Ingestion may cause spontaneous vomiting.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill/Leak: Notify safety personnel, evacuate unnecessary personnel, eliminate all sources of ignition immediately, and provide adequate explosion-proof ventilation. Cleanup personnel need protection against skin or eye contact with this liquid as well as inhalation of its vapor (see sect. 8). Contain large spills and collect or absorb waste with an inert material such as sand, earth, or vermiculite. Use nonsparking tools to place liquid or absorbent waste into closable containers for disposal. Keep waste out of sewers, watersheds, and waterways. **Waste Disposal:** Contact your supplier or a licensed contractor for detailed recommendations. Follow Federal, state, and local regulations.

OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000 Subpart Z).
EPA Designations (40 CFR 302.4)
RCRA Hazardous Waste, No. U226
CERCLA Hazardous Substance, Reportable Quantity: 1000 lbs (454 kg), per the Resource Conservation and Recovery Act, §3001.

SECTION 8. SPECIAL PROTECTION INFORMATION

Goggles: Always wear protective eyeglasses or chemical safety goggles. Where splashing is possible, wear a full face shield. Follow OSHA eye- and face-protection regulations (29 CFR 1910.133). **Respirator:** Use a NIOSH-approved respirator per Genium reference 88 for the maximum-use concentrations and/or the exposure limits cited in section 2. Follow OSHA respirator regulations (29 CFR 1910.134). For emergency or nonroutine operations (spills or cleaning reactor vessels and storage tanks), wear an SCBA. **Warning:** Air-purifying respirators will *not* protect workers in oxygen-deficient atmospheres. **Other:** Wear impervious gloves, boots, aprons, and gauntlets, etc., to prevent prolonged or repeated skin contact with this material. Suggested materials include neoprene, polyvinyl alcohol, or polyethylene. Natural rubber is not recommended. **Ventilation:** Install and operate general and local maximum, explosion-proof ventilation systems powerful enough to maintain airborne levels of this material below the OSHA PEL standard cited in section 2. Local exhaust ventilation is preferred because it prevents dispersion of the contaminant into the general work area by eliminating it at its source. Consult the latest edition of Genium reference 103 for detailed recommendations. **Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work areas. **Contaminated Equipment:** Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. Do *not* wear contact lenses in any work area. Remove contaminated clothing and launder it before wearing it again; clean this material from your shoes and equipment. **Other:** Exercise care in the selection of safety and handling equipment because methyl chloroform attacks natural rubber. **Comments:** Practice good personal hygiene; always wash thoroughly after using this material. Keep it off your clothing and equipment. Avoid transferring it from your hands to your mouth while eating, drinking, or smoking. Do *not* eat, drink, or smoke in any work area. Do not inhale methyl chloroform vapor. Consider functions of the CVS, CNS, liver, and skin while administering preplacement and periodic medical exams.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Storage/Segregation: Store methyl chloroform in closed containers in a cool, dry, well-ventilated area away from sources of ignition and incompatible chemicals (see sect. 5). Protect containers from physical damage. Steel is a recommended material for storage containers. **Special Handling/Storage:** Prevent moisture contamination of storage facilities. Monitor levels of inhibitor. Use caution in cleaning operations involving white metal fines (see sect. 5). **Engineering Controls:** Make sure all engineering systems (production, transportation) are of maximum, explosion-proof design. Electrically ground and bond all containers and pipelines, etc., used in shipping, transferring, reacting, production, and sampling operations to prevent generating static sparks. **Other:** Personnel who regularly work with methyl chloroform should avoid drinking alcoholic beverages shortly before, during, or after exposure.

Transportation Data (49 CFR 172.101-2)

DOT Shipping Name: 1,1,1-Trichloroethane
DOT Hazard Class: ORM-A
ID No. UN2831
DOT Packaging Requirements: 49 CFR 173.605
DOT Packaging Exceptions: 49 CFR 173.605

IMO Shipping Name: 1,1,1-Trichloromethane
IMO Hazard Class: 6.1
IMO Label: Saint Andrew's Cross (X)*
IMDG Packaging Group: III

*Harmful-Stow away from Foodstuffs (Materials of Class 6.1 Packaging Group III).

References: 1, 38, 84-94, 116, 117, 120, 122.

Prepared by PJ Igoe, BS
Industrial Hygiene Review: DJ Wilson, CIH
Medical Review: MJ Hardies, MD

Appendix E

Standard Operating Procedures

Standard Operating Procedure:

Monitoring Well Sampling

Discussion:

Water standing in a well prior to development and sampling may not be representative of true groundwater quality in the aquifer. It is therefore necessary to first purge the well of all stagnant water so that a representative groundwater sample can be obtained. Depending upon the monitoring well construction and hydraulic characteristics of the aquifer, well development may be conducted by manual bailing or with a submersible pump. Bailing is most appropriate for low yield or deep wells, whereas a pump may be suitable for higher yield wells or where sampling within a discrete zone is necessary.

Procedure:

1) Using a clean groundwater sensor indicator determine the depth to the water table and determine the total depth of the well and record in the field logbook. Depth to groundwater should be measured from a specified reference point on the PVC riser pipe.

   Then calculate the volume of standing water using the following equation:

   $v = \pi r^2 h$ where:

   v = one well volume of water (generally converted to gallons)
   - for inches multiply by 4.33×10^{-3}
   - for feet multiply by 7.48 to give gallons

   $\pi = 3.14$

   r = the radius of the well, measured as the inside diameter of the well divided by 2

   h = the height of the water column in the well

   Sample Calculation:

   Assume: r = 2-inch ID = 0.16-foot ID

   h = 1 foot

   $v = 3.14 * (0.16 \text{ ft}/2)^2 * (1 \text{ foot}) * (7.48 \text{ ft}^2/\text{gal})$

   v = 0.16 gal

   3v = 0.48 gal

   Therefore, as a rule of thumb, approximately 0.5 gallons of water must be purged from the well for each foot of water present in the monitoring well column.

Monitoring Well Sampling (cont.)

2) Calculate the number of bailer volumes or the duration of pumping required to evacuate at least three well volumes.

3) Evacuate well water to a small bucket or vessel (<0.5 gallons) in which the pH and specific conductivity probes have been placed.

4) Purging should continue until pH, temperature, and specific conductivity values do not vary appreciably; a minimum of three well volumes have been removed; and a stabilization in the silt content of the evacuated water has been achieved. Care should be taken so that the bailer line does not come in contact with the ground.

5) Record final pH, temperature, and specific conductivity values in field log book.

6) Prior to sampling, allow an equilibration period (minimum of 10 minutes).

7) Decontaminate all downhole purging equipment after use in one well using applicable sotandard operating procedures. If a disposable bailer or tubing is used, discard after one use. Discard the line used to support the bailer between wells.

8) A new pair of disposable gloves shall be worn for each individual well sampling.

9) Samples should be collected and containerized in order of decreasing sensitivity to volatilization.

   The following order should be used in collection of samples:

   VOCs
   semi-VOCs
   Petroleum Hydrocarbond
   Metals
   PCBs

10) Minimize agitation of sample during collection to prevent possible volatilization of components present in the sample.

11) Care must be taken to eliminate entry of or contact with any substance other than the water sample and the interior surface of the sampling container.

12) Samples submitted for VOC analysis should not contain any air bubbles.

13) Samples submitted for dissolved metals analysis should be filtered in the field, using CONECO's filtration and pump system. Acidification of the sample should not be performed until the sample has been properly filtered.

Monitoring Well Sampling (cont.)

14) When full, sampling containers should be securely capped, wiped off, appropriately labeled, and refrigerated until their delivery to the laboratory.

15) Complete the chain of custody form.

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updated: 3/94
bfk/c13

Standard Operating Procedure:

Soil Borings In Overburden Materials

Discussion:

Test boring programs in unconsolidated overburden materials may be conducted using a variety of drilling techniques. As most borings associated with site assessment techniques are performed in conjunction with monitoring well installation, the potential for downhole contamination from outside sources or near-surface soils is a concern. It is therefore desirable to utilize a technique which does not involve the introduction of drilling fluids into the borehole. It is for this reason that hollow-stem auger methods are most commonly employed. The auger column is comprised of a series of individual hollow auger sections that are typically 5 feet in length. The open stem of the auger column enables the borehole to be drilled while simultaneously serving as a temporary casing to prevent collapse of the borehole wall, and in turn facilitating the collection of the samples from the unconsolidated soil formations. The initial surface sample, i.e. 0-2 feet, is typically collected as a discrete sample from the auger flight cuttings. Unless otherwise specified, further sampling of the overburden is performed utilizing a split-barrel sampler at five foot intervals.

Procedure:

1) All boring activities are continuously inspected by a qualified CONECO geologist or engineer. The inspector is familiar with the selected drilling program and is responsible for the drilling and QA/QC procedures. Boring logs and field notes, as well as procedural changes, are the responsibility of the inspector.

2) All drilling equipment is steam cleaned prior to initial use at the site. The decision as to whether the drilling equipment is steam cleaned between boring locations is made in the field by the CONECO inspector and is based on field observations including photoionization detector (PID) levels.

3) Particular attention is to be paid to the cuttings transported by the auger column. Observations of the auger cuttings are noted for stratigraphic contacts and basic lithology as well as unusual conditions, including odor and discoloration.

4) Once the desired sampling depth has been reached (typically 5 feet below grade and at subsequent 5-foot intervals), the center rod of the auger column is withdrawn an the plug is replaced with a spilt barrel sampler. The CONECO field personnel ensure that the center rod and sampler assembly are extended to the proper sampling depth.

5) Successive blows of a 140-pound hammer weight free-falling 30 inches are used to drive the sampler 18 to 24 inches beyond the base of the auger stem into the undisturbed soils. Blow counts for each 6 inches of advance are recorded as a relative measure of soil density. These data represent the Standard Penetration Test (SPT) ASTM D 1586 used to evaluate soil density.

Soil Borings In Overburden Materials (cont.)

6) Descriptions of the sample materials, stratigraphy, blow counts, as well as drilling activities and notable drilling parameters are recorded on the test boring log. Soil samples, when recovered, are placed in appropriate containers for PID screening and laboratory analysis, if required.

7) Auger flight cuttings remaining from drilling activities will remain on-Site. Those soils exhibiting PID levels of 10 ppm or greater will be segregated and either containerized or placed on and covered with 6-mil polyethylene.

updated: 3/94
bfk/c13

Standard Operating Procedure:

Decontamination of Sampling Equipment

Discussion:

In most cases sampling equipment will either be dedicated on-Site or disposed of following use in a specific well, eliminating the need for decontamination of sampling equipment. In those cases where decontamination of sampling equipment is required, the method chosen will be one that removes Site contaminants from the equipment without interference with the chemical analyses to be performed. The general decontamination methodology for in-lab and field decontamination procedures is as follows:

Procedure:

1) Wash equipment with a non-phosphate detergent solution (e.g. Alconox, Liqui-nox).

2) Rinse thoroughly with de-ionized water.

3) Rinse thoroughly with methanol.

4) Rinse thoroughly with de-ionized water.

5) Repeat procedure between each sampling location.

6) If sampling for dissolved metals is being conducted, an additional rinse with a weak hydrochloric acid solution and de-ionized water should be performed.

7) If sampling for PCBs is being performed, an additional rinse with a weak hexane solution and de-ionized water should be conducted.

8) Care should be taken to ensure that no rinse waters runoff to environmentally sensitive area.

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updated: 3/94
bfk/c13

Standard Operating Procedure:

Field Headspace Screening -Photoionization Detector

Discussion:

Sample materials collected in the field are placed in tightly sealed clean glass jars to be screened for volatile compounds using either a HNU Model PI-101 or HW-101 photoionization detector (PID). CONECO utilizes the HW-101 when the field personnel consider moisture to be a potential variable. The PIDs can be used to detect organic or inorganic compounds with specific ionization potentials, however, individual compounds cannot be discriminated. Therefore, the results for total volatile vapor concentrations are expressed in the meter reading which the manufacturer defines as parts per million (ppm) of an equivalent amount of benzene. The limit of detectability of the screening procedure is 0.1 ppm.

Each instrument is cleaned and calibrated in accordance with the manufacturer's specifications on a regular basis. CONECO maintains individual maintenance and calibration logs for each PID. Prior to use in the field, the PID is calibrated using a benzene standard or equivalent (isobutylene) and the calibration data is logged.

Procedure:

1) Prior to use in the field, the photoionization detector (PID) is to be calibrated in accordance to manufacturers specifications.

2) Place the sample in an eight or ten-ounce jar until the jar is approximately half-full. Place thick aluminum foil over the mouth of the jar to create an effective seal. Shake the sample jar for 15 seconds and let stand at temperatures above 50° F.

3) After 10 to 15 minutes of equilibration time, shake the sample jar a second time and position the container for sampling. Puncture the aluminum foil seal with the PID probe tip, making sure that the probe tip does not come in contact with the sample material.

4) Observe the instrument meter and record the highest reading. The meter reading will most often peak within five seconds and steadily decrease as ambient air is introduced into the medium. If erratic variation is noted in the meter reading, the sample will be retested. Weather conditions are to be noted in conjunction with the PID data.

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updated: 3/94
bfk/c13

Standard Operating Procedure:

Monitoring Well Installation

Discussion:

Proper installation of monitoring wells is an essential element to an accurate hydrologic or site assessment investigation. Installation of monitoring wells typically consists of a 2 inch inside diameter (ID) Schedule 40 PVC well screen (0.1 inch slot size) and similar solid riser pipe. The screened interval is usually 10 feet in length and is centered at the apparent groundwater surface at the time of installation. One inch or four inch ID screen and riser may also be used depending on the constraints and objectives of the drilling program.

Procedure:

1) Upon completion of the test boring, the preassembled well screen and riser, with bottom plug siltation trap, is inserted into the borehole or more commonly, into the hollow stem auger or casing, as removing the auger flights can cause the surrounding formation to prematurely collapse on the well screen.

2) The well assembly is positioned at the desired depth and the annular space between the sidewall and well casing assembly is then backfilled with a clean, well sorted silica sand to a depth at least one foot above the well screen/riser connection. The screen and riser pipe is installed to be vertically plumb.

3) Once the sand filter pack is emplaced to the proper depth below grade (measured with tape), a divider seal, most commonly bentonite pellets, is inserted into to the annular space until a six-inch to 1-foot thick impermeable seal is formed around the casing.

4) The method for the backfilling the remainder of the annular space is determined by the qualified CONECO personnel. Typically, native material removed from the borehole having a PID reading below 10 ppm is then used to backfill the remaining annular space. Alternative backfill materials include concrete slurry or bentonite/water mixtures. The well riser is then fitted with a top plug and a locking protective casing or road box.

5) The protective casing or road box is securely cemented in place over the well. The cement seal is at a minimum one foot thick. If a road box is used, it is cemented flush with the pavement surface. If used, other protective casings should be grouted in place at least 0.5 feet above grade and identified with flagging.

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updated: 3/94
bfk/c13

Standard Operating Procedure:
Sampling with a Spade or Scoop

Discussion:

The simplest, most direct method of collecting soil samples for subsequent laboratory analysis or field screening is the use of a spade and/or scoop. A normal lawn or garden spade is utilized to remove the top cover of soil to the required depth and then a smaller stainless steel scoop is used to collect the sample.

This method can be used in most soil types but is limited somewhat to sampling near the surface. Samples from depths greater than 2 feet become labor intensive in most soil types. Very accurate, representative samples can be collected using this procedure depending on the care and precision demonstrated by the technician. The use of a flat, pointed mason trowel to cut a block of the desired soil will be of aid when undisturbed profiles are required. A stainless steel scoop or laboratory spoon will suffice in most other applications. Care should be exercised to avoid the use of devices plated with chrome or other materials, as metallic plating can affect ionic concentrations in the sample. Plating is particularly common with garden implements such as potting trowels.

Procedure:

1) Prior to initiating any work, the Health and Safety Plan developed for the specific site activities should be reviewed by the Field Technician and the Project Manager. The indicated precautions on the Plan should be enacted prior to initiation of the sampling activities. Any concerns not addressed in the Health and Safety Plan document are to be brought to the attention of the Health and Safety Officer.

2) Carefully remove the top layer of soil to the desired sample depth with a precleaned spade.

3) Using a precleaned stainless steel scoop or trowel, remove and discard a thin layer of soil from the area which comes in contact with the shovel.

4) Transfer the sample into an appropriate sample container with a clean stainless steel laboratory spoon or similar instrument.

5) Secure the cap tightly. Label the sample bottle with the appropriate sample tag. The chemical preservation of solids is generally not recommended. Be sure to label the tag carefully and clearly, addressing all the categories and parameters. Refrigerate sample until shipment to the laboratory.

6) Complete all chain-of-custody documents and record in the field log book.

7) Decontaminate equipment after use and between sample locations using applicable standard operating procedures.

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updated: 3/94
bfk/c13

Standard Operating Procedure:
Hand Auger and Post Hole Excavations

Discussion:

Hand augered and/or shallow hand dug holes may be used to supplement a test boring program or as the principal means of gathering shallow subsurface information. Excavations performed in this manner may be used to gather supplemental information at sites where test borings are being performed, but where access may be limited (e.g. swamps, woods, narrow alleys). If possible, manual excavations should be employed at all sites where no other subsurface work is proposed. The method is most suited for investigating areas of surficially stained soil or for determining the thickness of surface soils.

Procedure:

1) Prior to initiating any work, the Health and Safety Plan developed for the specific site activities should be reviewed by the Field Technician and the Project Manager. The indicated precautions on the Plan should be enacted prior to initiation of the sampling activities. Any concerns not addressed in the Health and Safety Plan document are to be brought to the attention of the Health and Safety Officer.

2) Decontaminate all equipment to be used in the performance of the excavation, including hand augers, post hole diggers, shovels and wrenches, to prevent potential cross contamination of subsurface soils. Decontamination should be performed using applicable standard operating procedures.

3) Determine the location of excavation and advance the hand auger or post hole digger into the soil in a manner appropriate for the equipment being used (i.e. turning the augers and driving the post hole digger).

4) Material which is removed from the excavation will be placed adjacent to the boring. Care should be taken to ensure that the material removed from the excavation does not re-enter the excavation.

5) Soil samples will be collected using a clean spade, knife or the lid of the sampling container to scrape soil directly from the bucket of the hand auger, or the blade of the post hole digger, into the sample container.

6) Secure the cap tightly. Label the sample bottle with the appropriate sample tag. The chemical preservation of solids is generally not recommended. Be sure to label the tag carefully and clearly, addressing all the categories and parameters. Refrigerate sample until shipment to the laboratory.

7) Remove the unused portions of the soil will be removed from the auger or post hole digger.

Hand Auger and Post Hole Excavations (cont.)

8) Performance of the manual boring will continue to a depth at which: 1) the desired objectives have been achieved, 2) boring continuation is refused due to impenetrable material, 3) boring depth exceeds the length of sampling and/or augering equipment or 4) significant cave-in prohibits continued excavation.

9) Upon completion of the test boring, all sampling equipment will be removed from the excavation and will be decontaminated using applicable standard operating procedures.

10) The excavation will be backfilled to grade with the material which was removed from the hole using a shovel or similar piece of equipment. To the extent possible, sediments will be replaced to the strata from which they were removed. This equipment will then be decontaminated at previously noted.

11) Complete all chain-of-custody documents and record in the field log book.

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updated: 3/94
bfk/c13

Appendix F

Test Boring Logs

CONECO ENVIRONMENTAL

TEST BORING REPORT

PROJECT: 3184
LOCATION: 238 Bodwell Street
DRILLING CO: Soil Exploration
EQUIPMENT: Acker AD-II
DRILLED BY: Mike LeGare
INSPECTED BY: Derek Volkin

BORING NO. B-8/CMW-1
PAGE 1 OF 8
DATE STARTED: 3/17/95
DATE FINISHED: 3/17/95
SURFACE ELEVATION: ---

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: ____

DEPTH	STABILIZATION TIME
8'	6 days

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV
	0.0 - 2.0	2	18	16	16			**Fill:** Gravelly Silty Sand; fine to coarse sand, 20-30% non-plastic fines, 5-10% gravel, cobbles, dark gray.	S-1	24/6	N.D.
	2.0 - 4.0	13	9	9	8			**Fill:** Same as above.	S-2	24/17	N.D.
							4.0				
5.0	4.0 - 6.0	8	11	11	11			**Glacial Till: Gravelly Sandy Silt**; non-plastic fines, 20-30% fine to coarse sand, 5-10% subangular gravel, brown, moist.	S-3	24/2	0.8
	6.0 - 8.0	7	8	8	9	▽		**Glacial Till:** Same as above, wet.	S-4	24/5	N.D.
							8.0	Bedrock encountered at 8 feet.			
10.0								Bottom of Boring - 9.0'			
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(–) = Sample taken from auger cuttings

CONECO ENVIRONMENTAL		TEST BORING REPORT	
PROJECT:	3184	BORING NO.	B-9/CMW-2
LOCATION:	230 Bodwell Street	PAGE 2 OF	8
DRILLING CO.:	Soil Exploration	DATE STARTED:	3/17/95
EQUIPMENT:	Acker AD-II	DATE FINISHED:	3/17/95
DRILLED BY:	Mike LeGare	SURFACE ELEVATION:	--
INSPECTED BY:	Derek Volkin		

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: ___

DEPTH	STABILIZATION TIME
4'	6 days

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV
	0.0 - 2.0	24	13	13	14			**Fill:** Gravelly Silty Sand; fine to coarse sand, 10-20% non-plastic fines, 5-10% subangular gravel, cobbles, brown.	S-1	24/1	N.D.
	2.0 - 4.0	14	16	16	15		▽	**Fill:** Same as above, dark brown, moist.	S-2	24/5	N.D.
	4.0 - 6.0	18	22	24	120/5"		4.0	**Glacial Till:** Gravelly Sandy Silt, non-plastic fines, 20-30% fine to coarse sand, 10-20% subangular gravel, cobbles, brown, wet. Bedrock encountered at 6 feet	S-3	19/5	N.D.
5.0							6.0	Bottom of Boring - 6.0'			
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

CONECO ENVIRONMENTAL		TEST BORING REPORT	
PROJECT:	3184	BORING NO:	B-10
LOCATION:	230 Bodwell Street	PAGE 3 OF	8
DRILLING CO:	Soil Exploration	DATE STARTED:	3/17/95
EQUIPMENT:	Acker AD-II	DATE FINISHED:	3/17/95
DRILLED BY:	Mike LeGare	SURFACE ELEVATION:	--
INSPECTED BY:	Derek Volkin		

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: X

DEPTH	STABILIZATION TIME

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV.
	0.0 - 1.5	2	7	120/5"				**Fill:** Gravelly Silty Sand; fine to coarse sand, 10-20% non-plastic fines, 5-10% subangular gravel, dark brown, organic matter with change to Glacial	S-1	19/8	N.D.
							1.3	Till, Gravelly Silty Sand at 1.3 feet			
							2.0	Bedrock encountered at 2 feet			
								Bottom of Boring - 3.0'			
5.0											
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

CONECO ENVIRONMENTAL		TEST BORING REPORT	
PROJECT:	3184	BORING NO.	B-11
LOCATION:	230 Bodwell Street	PAGE 4 OF	8
DRILLING CO:	Soil Exploration	DATE STARTED:	3/17/95
EQUIPMENT:	Acker AD-II	DATE FINISHED:	3/17/95
DRILLED BY:	Mike LeGare	SURFACE ELEVATION:	--
INSPECTED BY:	Derek Volkin		

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: X

DEPTH	STABILIZATION TIME

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV.
	0.0 - 2.0	4	10	16	15			**Fill:** Gravelly Silty Sand; fine to coarse sand, 20-30% non-plastic fines, 5-10% subangular gravel, brown.	S-1	24/10	N.D.
	2.0 - 4.0	17	28	33	26			**Fill:** Same as above.	S-2	24/14	N.D.
							4.5	Sample refusal auger cuttings consist of Glacial			
5.0	4.5 - 5.0	--	--	--	--		5.0	Till; Gravelly Silty Sand.	S-3	(--)	N.D.
								Bedrock encountered at 5 feet			
								Bottom of Boring : 5.0'			
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

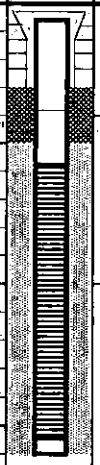
CONECO ENVIRONMENTAL		TEST BORING REPORT	
PROJECT:	3184	BORING NO.	B-12/CMW-3
LOCATION:	230 Bodwell Street	PAGE 5 OF	8
DRILLING CO:	Soil Exploration	DATE STARTED:	3/17/95
EQUIPMENT:	Acker AD-II	DATE FINISHED:	3/17/95
DRILLED BY:	Mike LeGare	SURFACE ELEVATION:	---
INSPECTED BY:	Derek Volkin		

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: ____

DEPTH	STABILIZATION TIME
2.8'	6 days

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV.
	0.0 - 2.0	22	35	120/5"				**Fill:** Gravelly Silty Sand; fine to coarse sand, 10-20% non-plastic fines, 5-10% subangular gravel, brown.	S-1	18/2	N.D.
							2.0				
	2.0 - 4.0	10	28	38	100/1"			**Glacial Till:** Gravelly Sandy Silt; non-plastic fines, 20-30% fine to coarse sand, 5-10% subangular gravel, brown, moist.	S-2	9/8	N.D.
5.0	4.5 - 5.0	--	--	--	--		5.0		S-3	(--)	N.D.
								Sample refusal.			
								Bedrock encountered at 5 feet			
								Bottom of Boring: 5.0'			
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

CONECO ENVIRONMENTAL		TEST BORING REPORT	
PROJECT:	3184	BORING NO.	B-13
LOCATION:	230 Bodwell Street	PAGE 6 OF	8
DRILLING CO:	Soil Exploration	DATE STARTED:	3/17/95
EQUIPMENT:	Acker AD-II	DATE FINISHED:	3/17/95
DRILLED BY:	Mike LeGare	SURFACE ELEVATION:	---
INSPECTED BY:	Derek Volkin		

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: X

DEPTH	STABILIZATION TIME

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE/ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV.
	0.0 - 2.0	1	15	20	22			**Fill:** Gravelly Silty Sand; fine to coarse sand, 10-20% non-plastic fines, 5-10% subangular gravel, dark brown, organic material.	S-1	24/8	N.D.
							2.0				
	2.0 - 4.0	15	30	100/1"			3.0	**Glacial Till:** Gravelly Sandy Silt; non-plastic fines, 20-30% fine to coarse sand, 5-10% subangular gravel, brown.	S-2	13/12	N.D.
5.0								Bedrock encountered at 3 feet			
								Bottom of Boring : 3.0'			
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

CONECO ENVIRONMENTAL	TEST BORING REPORT

PROJECT: 3184
LOCATION: 230 Bodwell Street
DRILLING CO: Soil Exploration
EQUIPMENT: Acker AD-II
DRILLED BY: Mike LeGare
INSPECTED BY: Derek Volkin

BORING NO. B-14
PAGE 7 OF 8
DATE STARTED: 3/17/95
DATE FINISHED: 3/17/95
SURFACE ELEVATION: ---

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: X

DEPTH	STABILIZATION TIME

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV.
	0.0 - 2.0	4	11	16	24			**Fill:** Gravelly Silty Sand; fine to coarse sand, 10-20% non-plastic fines, 5-10% subangular gravel, cobbles, brown.	S-1	24/6	N.D.
							2.0	Sample refusal, auger cuttings consist of Glacial Till; Gravelly Silty Sand.			
	2.0 - 3.0	--	--	--	--				S-2	(--)	N.D.
							3.5	Bedrock encountered at 3.5 feet			
5.0								Bottom of Boring : 3.5'			
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

CONECO ENVIRONMENTAL		TEST BORING REPORT	
PROJECT:	3184	BORING NO.	B-15/CMW-4
LOCATION:	230 Bodwell Street	PAGE 8 OF	8
DRILLING CO:	Soil Exploration	DATE STARTED:	3/17/95
EQUIPMENT:	Acker AD-II	DATE FINISHED:	3/17/95
DRILLED BY:	Mike LeGare	SURFACE ELEVATION:	—
INSPECTED BY:	Derek Volkin		

GROUNDWATER OBSERVATIONS

NOT ENCOUNTERED: —

DEPTH	STABILIZATION TIME
4.4	6 days

	CASING	SAMPLER	CORE BAR
TYPE:	HSA	Split-Barrel	
SIZE ID:	4 1/4"	1 3/8"	
HAMMER WT:		140 lb	
HAMMER FALL:		30"	

DEPTH (ft)	SAMPLING DEPTH FROM - TO	SAMPLE DATA: HAMMER BLOWS ON SAMPLER (inches) 0-6	6-12	12-18	18-24	WELL DATA	STRATA CHANGE (ft)	LITHOLOGY (Description of materials)	SAMPLE ID	PEN/ RECOV (in./in.)	HNU (ppm) Lamp 11.7 eV.
	0.0 - 2.0	1	2	3	3			**Fill:** Gravelly Silty Sand; fine to coarse sand, 10-20% non-plastic fines, 5-10% subangular gravel, brown, organic matter.	S-1	24/8	N.D.
							2.0				
	2.0 - 4.0	12	14	4	4			**Till:** Gravelly Sandy Silt; slightly plastic fines, 20 30% fine to coarse sand, 5-10% subangular gravel, brown, moist.	S-2	24/12	N.D.
							▽				
5.0	4.0 - 5.0	—	—	—	—		5.0	Sample Refusal.	S-3	(--)	N.D.
								Bedrock encountered at 5 feet			
								Bottom of Boring : 5.0'			
10.0											
15.0											
20.0											

GENERAL REMARKS: PID Background = 0.2 ppm
ND = Not Detected above screening method detection limit
(--) = Sample taken from auger cuttings

Appendix G

Original Laboratory Data, Laboratory QA/QC, Methods, and Chain of Custody

ANALYTICAL REPORT

Report To:	Mr. Derek Volkin Coneco Environmental 4 First Street Bridgewater, MA 02324
Project:	230/238 Bodwell St. Avon

03/29/1995

NET Job Number: 95.00930

National Environmental Testing

NET Atlantic, Inc.
Cambridge Division
12 Oak Park
Bedford, MA 01730

Massachusetts Certification Number
M MA023

NET Cambridge Division

ANALYTICAL REPORT

Report To:	Reported By:
Mr. Derek Volkin Coneco Environmental 4 First Street Bridgewater, MA 02324	National Environmental Testing NET Atlantic, Incorporated Cambridge Division 12 Oak Park Bedford, MA 01730

Report Date: 03/29/1995

NET Job Number: 95.00930

Project: 230/238 Bodwell St. Avon

NET Client No: 14100

P.O. No: Project 3184

Collected By: Client

Shipped Via: Courier

Job Description: 230/238 Bodwell St. Avon

Airbill No:

This report has been approved and certified for release by the following staff. Please feel free to call the NET Project Manager at 617-275-3535 with any questions or comments.

Christine M. Enwright
NET Project Manager

Report prepared by
NET Reports Group

Analytical data for the following samples are included in this data report.

SAMPLE ID	NET ID	DATE TAKEN	TIME TAKEN	DATE REC'D	MATRIX
B-8/S-3	120180	03/17/1995		03/21/1995	SOIL
B-9/S-3	120181	03/17/1995		03/21/1995	SOIL
B-10/S-1	120182	03/17/1995		03/21/1995	SOIL
B-12/S-3	120183	03/17/1995		03/21/1995	SOIL
B-13/S-2	120184	03/17/1995		03/21/1995	SOIL
B-15/S-3	120185	03/17/1995		03/21/1995	SOIL

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-2

NET Sample No: 120635

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	<25	ug/L	03/30/1995		2239	jpt
Benzene	<5.0	ug/L				
Bromodichloromethane	<5.0	ug/L				
Bromoform	<5.0	ug/L				
Bromomethane	<5.0	ug/L				
2-Butanone (MEK)	<25	ug/L				
Carbon Disulfide	<5.0	ug/L				
Carbon Tetrachloride	<5.0	ug/L				
Chlorobenzene	<5.0	ug/L				
Chloroethane	<5.0	ug/L				
2-Chloroethylvinyl ether	<5.0	ug/L				
Chloroform	<5.0	ug/L				
Chloromethane	<5.0	ug/L				
Dibromochloromethane	<5.0	ug/L				
1,2-Dichlorobenzene	<5.0	ug/L				
1,3-Dichlorobenzene	<5.0	ug/L				
1,4-Dichlorobenzene	<5.0	ug/L				
1,1-Dichloroethane	<5.0	ug/L				
1,2-Dichloroethane	<5.0	ug/L				
1,1-Dichloroethene	<5.0	ug/L				
1,2-Dichloroethene (total)	<5.0	ug/L				
1,2-Dichloropropane	<5.0	ug/L				
cis-1,3-Dichloropropene	<5.0	ug/L				
trans-1,3-Dichloropropene	<5.0	ug/L				
Ethylbenzene	<5.0	ug/L				
2-Hexanone	<25	ug/L				
4-Methyl-2-pentanone (MIBK	<25	ug/L				
Methylene Chloride	42	ug/L				
Styrene	<5.0	ug/L				
1,1,2,2-Tetrachloroethane	<5.0	ug/L				
Tetrachloroethene	<5.0	ug/L				
Toluene	<5.0	ug/L				
1,1,1-Trichloroethane	<5.0	ug/L				
1,1,2-Trichloroethane	<5.0	ug/L				
Trichloroethene	<5.0	ug/L				
Trichlorofluoromethane	<5.0	ug/L				
Vinyl Acetate	<5.0	ug/L				
Vinyl Chloride	<5.0	ug/L				
m-Xylene	<5.0	ug/L				
o-Xylene	<5.0	ug/L				
p-Xylene	<5.0	ug/L				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-3

NET Sample No: 120636

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	120	ug/L	03/30/1995		2238	jpt
Benzene	<5.0	ug/L				
Bromodichloromethane	<5.0	ug/L				
Bromoform	<5.0	ug/L				
Bromomethane	<5.0	ug/L				
2-Butanone (MEK)	28	ug/L				
Carbon Disulfide	<5.0	ug/L				
Carbon Tetrachloride	<5.0	ug/L				
Chlorobenzene	<5.0	ug/L				
Chloroethane	<5.0	ug/L				
2-Chloroethylvinyl ether	<5.0	ug/L				
Chloroform	<5.0	ug/L				
Chloromethane	<5.0	ug/L				
Dibromochloromethane	<5.0	ug/L				
1,2-Dichlorobenzene	<5.0	ug/L				
1,3-Dichlorobenzene	<5.0	ug/L				
1,4-Dichlorobenzene	<5.0	ug/L				
1,1-Dichloroethane	<5.0	ug/L				
1,2-Dichloroethane	<5.0	ug/L				
1,1-Dichloroethene	<5.0	ug/L				
1,2-Dichloroethene (total)	<5.0	ug/L				
1,2-Dichloropropane	<5.0	ug/L				
cis-1,3-Dichloropropene	<5.0	ug/L				
trans-1,3-Dichloropropene	<5.0	ug/L				
Ethylbenzene	<5.0	ug/L				
2-Hexanone	<25	ug/L				
4-Methyl-2-pentanone (MIBK	<25	ug/L				
Methylene Chloride	<5.0	ug/L				
Styrene	<5.0	ug/L				
1,1,2,2-Tetrachloroethane	<5.0	ug/L				
Tetrachloroethene	<5.0	ug/L				
Toluene	<5.0	ug/L				
1,1,1-Trichloroethane	<5.0	ug/L				
1,1,2-Trichloroethane	<5.0	ug/L				
Trichloroethene	<5.0	ug/L				
Trichlorofluoromethane	<5.0	ug/L				
Vinyl Acetate	<5.0	ug/L				
Vinyl Chloride	<5.0	ug/L				
m-Xylene	<5.0	ug/L				
o-Xylene	<5.0	ug/L				
p-Xylene	<5.0	ug/L				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-8/S-3

NET Sample No: 120180

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
EX Petroleum Hydrocarbon,TPH S	EPA 418.1 modified	03/24/1995	date	03/24/1995	exiph_		ask
Petroleum Hydrocarbons, TPH S	EPA 418.1(modified)	610	mg/Kg	03/27/1995	exiph_	182	ask

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-9/S-3

NET Sample No: 120181

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
EX Petroleum Hydrocarbon,TPH S	EPA 418.1 modified	03/24/1995	date	03/24/1995	exiph_		ask
Petroleum Hydrocarbons, TPH S	EPA 418.1(modified)	<75	mg/Kg	03/27/1995	exiph_	182	ask

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Conoco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-10/S-1

NET Sample No: 120182

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
EX Petroleum Hydrocarbon,TPH S	EPA 418.1 modified	03/24/1995	date	03/24/1995	exiph_		ask
Petroleum Hydrocarbons, TPH S	EPA 418.1(modified)	<77	mg/Kg	03/27/1995	exiph_	182	ask

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-12/S-3

NET Sample No: 120183

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
EX Petroleum Hydrocarbon,TPH S	EPA 418.1 modified	03/25/1995	date	03/25/1995	exiph_		sbf
Petroleum Hydrocarbons, TPH S	EPA 418.1(modified)	<67	mg/Kg	03/27/1995	exiph_	182	ask

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-13/S-2

NET Sample No: 120184

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
EX Petroleum Hydrocarbon,TPH S	EPA 418.1 modified	03/25/1995	date	03/25/1995	exiph_		sbf
Petroleum Hydrocarbons, TPH S	EPA 418.1(modified)	<72	mg/Kg	03/27/1995	exiph_	182	ask

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-15/S-3

NET Sample No: 120185

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
EX Petroleum Hydrocarbon,TPH S	EPA 418.1 modified	03/25/1995	date	03/25/1995	exiph_		sbf
Petroleum Hydrocarbons, TPH S	EPA 418.1(modified)	<84	mg/Kg	03/27/1995	exiph_	182	ask

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-8/S-3

NET Sample No: 120180

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 S						
Acetone	<30.	ug/Kg	03/22/1995		716	jss
Benzene	<6.0	ug/Kg				
Bromodichloromethane	<6.0	ug/Kg				
Bromoform	<6.0	ug/Kg				
Bromomethane	<6.0	ug/Kg				
2-Butanone (MEK)	<30.	ug/Kg				
Carbon Disulfide	<6.0	ug/Kg				
Carbon Tetrachloride	<6.0	ug/Kg				
Chlorobenzene	<6.0	ug/Kg				
Chloroethane	<6.0	ug/Kg				
2-Chloroethylvinyl ether	<6.0	ug/Kg				
Chloroform	<6.0	ug/Kg				
Chloromethane	<6.0	ug/Kg				
Dibromochloromethane	<6.0	ug/Kg				
1,2-Dichlorobenzene	<6.0	ug/Kg				
1,3-Dichlorobenzene	<6.0	ug/Kg				
1,4-Dichlorobenzene	<6.0	ug/Kg				
1,1-Dichloroethane	<6.0	ug/Kg				
1,2-Dichloroethane	<6.0	ug/Kg				
1,1-Dichloroethene	<6.0	ug/Kg				
1,2-Dichloroethene (total)	<6.0	ug/Kg				
1,2-Dichloropropane	<6.0	ug/Kg				
cis-1,3-Dichloropropene	<6.0	ug/Kg				
trans-1,3-Dichloropropene	<6.0	ug/Kg				
Ethylbenzene	<6.0	ug/Kg				
2-Hexanone	<30.	ug/Kg				
4-Methyl-2-pentanone (MIBK	<30.	ug/Kg				
Methylene Chloride	<6.0	ug/Kg				
Styrene	<6.0	ug/Kg				
1,1,2,2-Tetrachloroethane	<6.0	ug/Kg				
Tetrachloroethene	<6.0	ug/Kg				
Toluene	<6.0	ug/Kg				
1,1,1-Trichloroethane	<6.0	ug/Kg				
1,1,2-Trichloroethane	<6.0	ug/Kg				
Trichloroethene	<6.0	ug/Kg				
Trichlorofluoromethane	<6.0	ug/Kg				
Vinyl Acetate	<6.0	ug/Kg				
Vinyl Chloride	<6.0	ug/Kg				
m-Xylene	<6.0	ug/Kg				
o-Xylene	<6.0	ug/Kg				
p-Xylene	<6.0	ug/Kg				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-9/S-3

NET Sample No: 120181

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 S						
Acetone	41	ug/Kg	03/22/1995		716	jss
Benzene	<5.0	ug/Kg				
Bromodichloromethane	<5.0	ug/Kg				
Bromoform	<5.0	ug/Kg				
Bromomethane	<5.0	ug/Kg				
2-Butanone (MEK)	<25	ug/Kg				
Carbon Disulfide	<5.0	ug/Kg				
Carbon Tetrachloride	<5.0	ug/Kg				
Chlorobenzene	<5.0	ug/Kg				
Chloroethane	<5.0	ug/Kg				
2-Chloroethylvinyl ether	<5.0	ug/Kg				
Chloroform	<5.0	ug/Kg				
Chloromethane	<5.0	ug/Kg				
Dibromochloromethane	<5.0	ug/Kg				
1,2-Dichlorobenzene	<5.0	ug/Kg				
1,3-Dichlorobenzene	<5.0	ug/Kg				
1,4-Dichlorobenzene	<5.0	ug/Kg				
1,1-Dichloroethane	<5.0	ug/Kg				
1,2-Dichloroethane	<5.0	ug/Kg				
1,1-Dichloroethene	<5.0	ug/Kg				
1,2-Dichloroethene (total)	<5.0	ug/Kg				
1,2-Dichloropropane	<5.0	ug/Kg				
cis-1,3-Dichloropropene	<5.0	ug/Kg				
trans-1,3-Dichloropropene	<5.0	ug/Kg				
Ethylbenzene	<5.0	ug/Kg				
2-Hexanone	<25	ug/Kg				
4-Methyl-2-pentanone (MIBK	<25	ug/Kg				
Methylene Chloride	<5.0	ug/Kg				
Styrene	<5.0	ug/Kg				
1,1,2,2-Tetrachloroethane	<5.0	ug/Kg				
Tetrachloroethene	<5.0	ug/Kg				
Toluene	<5.0	ug/Kg				
1,1,1-Trichloroethane	<5.0	ug/Kg				
1,1,2-Trichloroethane	<5.0	ug/Kg				
Trichloroethene	<5.0	ug/Kg				
Trichlorofluoromethane	<5.0	ug/Kg				
Vinyl Acetate	<5.0	ug/Kg				
Vinyl Chloride	<5.0	ug/Kg				
m-Xylene	<5.0	ug/Kg				
o-Xylene	<5.0	ug/Kg				
p-Xylene	<5.0	ug/Kg				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-10/S-1

NET Sample No: 120182

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 S						
Acetone	<30.	ug/Kg	03/22/1995		716	jss
Benzene	<6.0	ug/Kg				
Bromodichloromethane	<6.0	ug/Kg				
Bromoform	<6.0	ug/Kg				
Bromomethane	<6.0	ug/Kg				
2-Butanone (MEK)	<30.	ug/Kg				
Carbon Disulfide	<6.0	ug/Kg				
Carbon Tetrachloride	<6.0	ug/Kg				
Chlorobenzene	<6.0	ug/Kg				
Chloroethane	<6.0	ug/Kg				
2-Chloroethylvinyl ether	<6.0	ug/Kg				
Chloroform	<6.0	ug/Kg				
Chloromethane	<6.0	ug/Kg				
Dibromochloromethane	<6.0	ug/Kg				
1,2-Dichlorobenzene	<6.0	ug/Kg				
1,3-Dichlorobenzene	<6.0	ug/Kg				
1,4-Dichlorobenzene	<6.0	ug/Kg				
1,1-Dichloroethane	<6.0	ug/Kg				
1,2-Dichloroethane	<6.0	ug/Kg				
1,1-Dichloroethene	<6.0	ug/Kg				
1,2-Dichloroethene (total)	<6.0	ug/Kg				
1,2-Dichloropropane	<6.0	ug/Kg				
cis-1,3-Dichloropropene	<6.0	ug/Kg				
trans-1,3-Dichloropropene	<6.0	ug/Kg				
Ethylbenzene	<6.0	ug/Kg				
2-Hexanone	<30.	ug/Kg				
4-Methyl-2-pentanone (MIBK	<30.	ug/Kg				
Methylene Chloride	<6.0	ug/Kg				
Styrene	<6.0	ug/Kg				
1,1,2,2-Tetrachloroethane	<6.0	ug/Kg				
Tetrachloroethene	<6.0	ug/Kg				
Toluene	<6.0	ug/Kg				
1,1,1-Trichloroethane	<6.0	ug/Kg				
1,1,2-Trichloroethane	<6.0	ug/Kg				
Trichloroethene	<6.0	ug/Kg				
Trichlorofluoromethane	<6.0	ug/Kg				
Vinyl Acetate	<6.0	ug/Kg				
Vinyl Chloride	<6.0	ug/Kg				
m-Xylene	<6.0	ug/Kg				
o-Xylene	<6.0	ug/Kg				
p-Xylene	<6.0	ug/Kg				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-12/S-3

NET Sample No: 120183

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 S						
Acetone	79	ug/Kg	03/22/1995		716	jss
Benzene	<5.0	ug/Kg				
Bromodichloromethane	<5.0	ug/Kg				
Bromoform	<5.0	ug/Kg				
Bromomethane	<5.0	ug/Kg				
2-Butanone (MEK)	<25	ug/Kg				
Carbon Disulfide	<5.0	ug/Kg				
Carbon Tetrachloride	<5.0	ug/Kg				
Chlorobenzene	<5.0	ug/Kg				
Chloroethane	<5.0	ug/Kg				
2-Chloroethylvinyl ether	<5.0	ug/Kg				
Chloroform	<5.0	ug/Kg				
Chloromethane	<5.0	ug/Kg				
Dibromochloromethane	<5.0	ug/Kg				
1,2-Dichlorobenzene	<5.0	ug/Kg				
1,3-Dichlorobenzene	<5.0	ug/Kg				
1,4-Dichlorobenzene	<5.0	ug/Kg				
1,1-Dichloroethane	<5.0	ug/Kg				
1,2-Dichloroethane	<5.0	ug/Kg				
1,1-Dichloroethene	<5.0	ug/Kg				
1,2-Dichloroethene (total)	<5.0	ug/Kg				
1,2-Dichloropropane	<5.0	ug/Kg				
cis-1,3-Dichloropropene	<5.0	ug/Kg				
trans-1,3-Dichloropropene	<5.0	ug/Kg				
Ethylbenzene	<5.0	ug/Kg				
2-Hexanone	<25	ug/Kg				
4-Methyl-2-pentanone (MIBK	<25	ug/Kg				
Methylene Chloride	<5.0	ug/Kg				
Styrene	<5.0	ug/Kg				
1,1,2,2-Tetrachloroethane	<5.0	ug/Kg				
Tetrachloroethene	<5.0	ug/Kg				
Toluene	<5.0	ug/Kg				
1,1,1-Trichloroethane	<5.0	ug/Kg				
1,1,2-Trichloroethane	<5.0	ug/Kg				
Trichloroethene	<5.0	ug/Kg				
Trichlorofluoromethane	<5.0	ug/Kg				
Vinyl Acetate	<5.0	ug/Kg				
Vinyl Chloride	<5.0	ug/Kg				
m-Xylene	<5.0	ug/Kg				
o-Xylene	<5.0	ug/Kg				
p-Xylene	<5.0	ug/Kg				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-13/S-2

NET Sample No: 120184

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 S						
Acetone	<25	ug/Kg	03/22/1995		716	jss
Benzene	<5.0	ug/Kg				
Bromodichloromethane	<5.0	ug/Kg				
Bromoform	<5.0	ug/Kg				
Bromomethane	<5.0	ug/Kg				
2-Butanone (MEK)	<25	ug/Kg				
Carbon Disulfide	<5.0	ug/Kg				
Carbon Tetrachloride	<5.0	ug/Kg				
Chlorobenzene	<5.0	ug/Kg				
Chloroethane	<5.0	ug/Kg				
2-Chloroethylvinyl ether	<5.0	ug/Kg				
Chloroform	<5.0	ug/Kg				
Chloromethane	<5.0	ug/Kg				
Dibromochloromethane	<5.0	ug/Kg				
1,2-Dichlorobenzene	<5.0	ug/Kg				
1,3-Dichlorobenzene	<5.0	ug/Kg				
1,4-Dichlorobenzene	<5.0	ug/Kg				
1,1-Dichloroethane	<5.0	ug/Kg				
1,2-Dichloroethane	<5.0	ug/Kg				
1,1-Dichloroethene	<5.0	ug/Kg				
1,2-Dichloroethene (total)	<5.0	ug/Kg				
1,2-Dichloropropane	<5.0	ug/Kg				
cis-1,3-Dichloropropene	<5.0	ug/Kg				
trans-1,3-Dichloropropene	<5.0	ug/Kg				
Ethylbenzene	<5.0	ug/Kg				
2-Hexanone	<25	ug/Kg				
4-Methyl-2-pentanone (MIBK	<25	ug/Kg				
Methylene Chloride	<5.0	ug/Kg				
Styrene	<5.0	ug/Kg				
1,1,2,2-Tetrachloroethane	<5.0	ug/Kg				
Tetrachloroethene	<5.0	ug/Kg				
Toluene	<5.0	ug/Kg				
1,1,1-Trichloroethane	<5.0	ug/Kg				
1,1,2-Trichloroethane	<5.0	ug/Kg				
Trichloroethene	<5.0	ug/Kg				
Trichlorofluoromethane	<5.0	ug/Kg				
Vinyl Acetate	<5.0	ug/Kg				
Vinyl Chloride	<5.0	ug/Kg				
m-Xylene	<5.0	ug/Kg				
o-Xylene	<5.0	ug/Kg				
p-Xylene	<5.0	ug/Kg				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 03/29/1995

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Date Rec'd: 03/21/1995

Sample ID: B-15/S-3

NET Sample No: 120185

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 S						
Acetone	110	ug/Kg	03/22/1995		716	jss
Benzene	<6.0	ug/Kg				
Bromodichloromethane	<6.0	ug/Kg				
Bromoform	<6.0	ug/Kg				
Bromomethane	<6.0	ug/Kg				
2-Butanone (MEK)	<30.	ug/Kg				
Carbon Disulfide	<6.0	ug/Kg				
Carbon Tetrachloride	<6.0	ug/Kg				
Chlorobenzene	<6.0	ug/Kg				
Chloroethane	<6.0	ug/Kg				
2-Chloroethylvinyl ether	<6.0	ug/Kg				
Chloroform	<6.0	ug/Kg				
Chloromethane	<6.0	ug/Kg				
Dibromochloromethane	<6.0	ug/Kg				
1,2-Dichlorobenzene	<6.0	ug/Kg				
1,3-Dichlorobenzene	<6.0	ug/Kg				
1,4-Dichlorobenzene	<6.0	ug/Kg				
1,1-Dichloroethane	<6.0	ug/Kg				
1,2-Dichloroethane	<6.0	ug/Kg				
1,1-Dichloroethene	<6.0	ug/Kg				
1,2-Dichloroethene (total)	<6.0	ug/Kg				
1,2-Dichloropropane	<6.0	ug/Kg				
cis-1,3-Dichloropropene	<6.0	ug/Kg				
trans-1,3-Dichloropropene	<6.0	ug/Kg				
Ethylbenzene	<6.0	ug/Kg				
2-Hexanone	<30.	ug/Kg				
4-Methyl-2-pentanone (MIBK	<30.	ug/Kg				
Methylene Chloride	<6.0	ug/Kg				
Styrene	<6.0	ug/Kg				
1,1,2,2-Tetrachloroethane	<6.0	ug/Kg				
Tetrachloroethene	<6.0	ug/Kg				
Toluene	<6.0	ug/Kg				
1,1,1-Trichloroethane	<6.0	ug/Kg				
1,1,2-Trichloroethane	<6.0	ug/Kg				
Trichloroethene	<6.0	ug/Kg				
Trichlorofluoromethane	<6.0	ug/Kg				
Vinyl Acetate	<6.0	ug/Kg				
Vinyl Chloride	<6.0	ug/Kg				
m-Xylene	<6.0	ug/Kg				
o-Xylene	<6.0	ug/Kg				
p-Xylene	<6.0	ug/Kg				

NET Cambridge Division

QUALITY CONTROL DATA

Client: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Report Date: 03/29/1995

Surrogate Standard Percent Recovery

Abbreviated Surrogate Standard Names:

SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12
Bromofl	1,2-Dic	Toluene									

			Percent Recovery										
Sample ID	NET ID	Matrix	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12
B-8/S-3	120180	SOIL	92	95	103									
B-9/S-3	120181	SOIL	100	102	111									
B-10/S-1	120182	SOIL	74	83	111									
B-12/S-3	120183	SOIL	93	103	117									
B-13/S-2	120184	SOIL	96	95	102									
B-15/S-3	120185	SOIL	93	96	107									

Notes:
NR - This surrogate standard is Not Required. Other versions of this test method may use this surrogate standard.
Dil - This surrogate standard was diluted to below detectable levels due to concentrations of analytes in this sample.

Complete Surrogate Standard Names Listed by Analysis:

Pesticide Surrogate Standards:
Decachl = Decachlorobiphenyl
Dibutyl = Dibutylchlorendate
Tetrach = Tetrachloro-m-xylene

Volatile Surrogate Standards:
Bromofl = Bromofluorobenzene
1,2-Dichl = 1,2-Dichloroethane-d4
Toluene = Toluene-d8

Drinking Water Method 524
1,2-Dichl = 1,2-Dichlorobenzene-d4

Semivolatile Surrogate Standards:
2-Fluor (1st) = 2-Fluorobiphenyl
2-Fluor (2nd) = 2-Fluorophenol
Phenol-d = Phenol-d6
Nitrobe = Nitrobenzene-d5
2,4,6-T = 2,4,6-Tribromophenol
p-Terph = p-Terphenyl

Herbicides Surrogate Standard:
2,4-Dic = 2,4-Dichlorophenyl acetic acid

Petroleum Hydrocarbon Fingerprint Surrogate Standard:
2-Fluor = 2-Fluorobiphenyl
para-Te = para-Terphynyl

NET Cambridge Division

QUALITY CONTROL DATA

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Report Date : 03/29/1995

Method Blank Analysis Data

Test Name	Result	Units	Prep Batch	Run Batch	Run Date	Analyst Initials
Petroleum Hydrocarbons, TPH S	<67	mg/Kg	182	182	03/26/1995	ask
Petroleum Hydrocarbons, TPH S	<67	mg/Kg	182	182	03/27/1995	ask
TCL Volatiles by GC/MS 8240 S						
Bromofluorobenzene	103	% recov.		716	03/22/1995	jss
1,2-Dichloroethane-d4	102	% recov.		716	03/22/1995	jss
Toluene-d8	103	% recov.		716	03/22/1995	jss
Acetone	7	ug/Kg		716	03/22/1995	jss
Benzene	<5	ug/Kg		716	03/22/1995	jss
Bromodichloromethane	<5	ug/Kg		716	03/22/1995	jss
Bromoform	<5	ug/Kg		716	03/22/1995	jss
Bromomethane	<5	ug/Kg		716	03/22/1995	jss
2-Butanone (MEK)	<25	ug/Kg		716	03/22/1995	jss
Carbon Disulfide	<5	ug/Kg		716	03/22/1995	jss
Carbon Tetrachloride	<5	ug/Kg		716	03/22/1995	jss
Chlorobenzene	<5	ug/Kg		716	03/22/1995	jss
Chloroethane	<5	ug/Kg		716	03/22/1995	jss
2-Chloroethylvinyl ether	<5	ug/Kg		716	03/22/1995	jss
Chloroform	<5	ug/Kg		716	03/22/1995	jss
Chloromethane	<5	ug/Kg		716	03/22/1995	jss
Dibromochloromethane	<5	ug/Kg		716	03/22/1995	jss
1,2-Dichlorobenzene	<5	ug/Kg		716	03/22/1995	jss
1,3-Dichlorobenzene	<5	ug/Kg		716	03/22/1995	jss
1,4-Dichlorobenzene	<5	ug/Kg		716	03/22/1995	jss
1,1-Dichloroethane	<5	ug/Kg		716	03/22/1995	jss
1,2-Dichloroethane	<5	ug/Kg		716	03/22/1995	jss
1,1-Dichloroethene	<5	ug/Kg		716	03/22/1995	jss
1,2-Dichloroethene (total)	<5	ug/Kg		716	03/22/1995	jss
1,2-Dichloropropane	<5	ug/Kg		716	03/22/1995	jss
cis-1,3-Dichloropropene	<5	ug/Kg		716	03/22/1995	jss
trans-1,3-Dichloropropene	<5	ug/Kg		716	03/22/1995	jss
Ethylbenzene	<5	ug/Kg		716	03/22/1995	jss
2-Hexanone	<25	ug/Kg		716	03/22/1995	jss
Methylene Chloride	<5	ug/Kg		716	03/22/1995	jss
4-Methyl-2-pentanone (MIBK	<25	ug/Kg		716	03/22/1995	jss
Styrene	<5	ug/Kg		716	03/22/1995	jss
1,1,2,2-Tetrachloroethane	<5	ug/Kg		716	03/22/1995	jss
Tetrachloroethene	<5	ug/Kg		716	03/22/1995	jss
Toluene	<5	ug/Kg		716	03/22/1995	jss
1,1,1-Trichloroethane	<5	ug/Kg		716	03/22/1995	jss
1,1,2-Trichloroethane	<5	ug/Kg		716	03/22/1995	jss
Trichloroethene	<5	ug/Kg		716	03/22/1995	jss
Trichlorofluoromethane	<5	ug/Kg		716	03/22/1995	jss
Vinyl Acetate	<5	ug/Kg		716	03/22/1995	jss
Vinyl Chloride	<5	ug/L		716	03/22/1995	jss
m-Xylene	<5	ug/Kg		716	03/22/1995	jss
o-Xylene	<5	ug/L		716	03/22/1995	jss
p-Xylene	<5	ug/Kg		716	03/22/1995	jss

NET Cambridge Division
QUALITY CONTROL DATA

Report To: Coneco Environmental

NET Job No: 95.00930

Project: 230/238 Bodwell St. Avon

Report Date: 03/29/1995

Matrix Spike/Matrix Spike Duplicate Results

Compound	Spike Amount	Sample Result	Units	MS Result	MS % Recovery	MSD Result	MSD % Recovery	RPD
TCL Volatiles by GC/MS 8240 S								
Benzene	58	<6.0	ug/Kg	65.1	112.2	73.2	126.2	11.7
Bromodichloromethane	0.0	<6.0	ug/Kg					
Bromoform	0.0	<6.0	ug/Kg					
Bromomethane	0.0	<6.0	ug/Kg					
Carbon Disulfide	0.0	<6.0	ug/Kg					
Carbon Tetrachloride	0.0	<6.0	ug/Kg					
Chlorobenzene	58	<6.0	ug/Kg	61.2	105.5	63.8	110.0	4.2
Chloroethane	0.0	<6.0	ug/Kg					
2-Chloroethylvinyl ether	0.0	<6.0	ug/Kg					
Chloroform	0.0	<6.0	ug/Kg					
Chloromethane	0.0	<6.0	ug/Kg					
Dibromochloromethane	0.0	<6.0	ug/Kg					
1,2-Dichlorobenzene	0.0	<6.0	ug/Kg					
1,3-Dichlorobenzene	0.0	<6.0	ug/Kg					
1,4-Dichlorobenzene	0.0	<6.0	ug/Kg					
1,1-Dichloroethane	0.0	<6.0	ug/Kg					
1,2-Dichloroethane	0.0	<6.0	ug/Kg					
1,1-Dichloroethene	58	<6.0	ug/Kg	56.4	97.2	56.4	97.2	0.0
1,2-Dichloropropane	0.0	<6.0	ug/Kg					
cis-1,3-Dichloropropene	0.0	<6.0	ug/Kg					
trans-1,3-Dichloropropene	0.0	<6.0	ug/Kg					
Ethylbenzene	0.0	<6.0	ug/Kg					
Methylene Chloride	0.0	<6.0	ug/Kg					
Styrene	0.0	<6.0	ug/Kg					
1,1,2,2-Tetrachloroethane	0.0	<6.0	ug/Kg					
Tetrachloroethene	0.0	<6.0	ug/Kg					
Toluene	58	<6.0	ug/Kg	64.2	110.7	68.9	118.8	7.1
1,1,1-Trichloroethane	0.0	<6.0	ug/Kg					
1,1,2-Trichloroethane	0.0	<6.0	ug/Kg					
Trichloroethene	58	<6.0	ug/Kg	57.6	99.3	66.3	114.3	13.9
Trichlorofluoromethane	0.0	<6.0	ug/Kg					
Vinyl Acetate	0.0	<6.0	ug/Kg					
Vinyl Chloride	0.0	<6.0	ug/Kg					
m-Xylene	0.0	<6.0	ug/Kg					
o-Xylene	0.0	<6.0	ug/Kg					
p-Xylene	0.0	<6.0	ug/Kg					

NOTE: Data reported for spiked samples were analyzed in the same batch, but may not necessarily be that of your sample.

ANALYTICAL REPORT

Report To: Mr. Derek Volkin
Coneco Environmental
4 First Street
Bridgewater, MA 02324

Project: 230/238 Bodwell Street

04/06/1995

NET Job Number: 95.01040

National Environmental Testing

NET Atlantic, Inc.
Cambridge Division
12 Oak Park
Bedford, MA 01730

Massachusetts Certification Number
M MA023

NET Cambridge Division

ANALYTICAL REPORT

Report To:	Reported By:
Mr. Derek Volkin Coneco Environmental 4 First Street Bridgewater, MA 02324	National Environmental Testing NET Atlantic, Incorporated Cambridge Division 12 Oak Park Bedford, MA 01730

Report Date: 04/06/1995

NET Job Number: 95.01040

Project: 230/238 Bodwell Street

NET Client No: 14100

P.O. No: Project 3184

Collected By: Client

Shipped Via: Courier

Job Description: Avon MA

Airbill No:

This report has been approved and certified for release by the following staff. Please feel free to call the NET Project Manager at 617-275-3535 with any questions or comments.

E J Adams

Elizabeth J. Adams
NET Project Manager

Aida Valencia

Report prepared by
NET Reports Group

Analytical data for the following samples are included in this data report.

SAMPLE ID	NET ID	DATE TAKEN	TIME TAKEN	DATE REC'D	MATRIX
CMW-2	120635	03/24/1995	17:20	03/27/1995	GROUND WATER
CMW-3	120636	03/24/1995	18:45	03/27/1995	GROUND WATER
KOW-2	120637	03/24/1995	18:15	03/27/1995	GROUND WATER
MW-5	120638	03/24/1995	17:05	03/27/1995	GROUND WATER
CMW-1	120639	03/24/1995	16:30	03/27/1995	GROUND WATER
CMW-5	120640	03/24/1995	17:40	03/27/1995	GROUND WATER
CMW-6	120641	03/24/1995	18:15	03/27/1995	GROUND WATER

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-2

NET Sample No: 120635

Parameter		Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
Aqueous Digestion	EPA200 AQ	EPA 200 mod	03/28/1995	date	03/28/1995	5661cw		gsw
Cadmium (Cd)	200 ICP AQ	EPA 200 ICP, 200.7mod.	<0.0050	mg/L	03/30/1995		510	ecw
Chromium (Cr)	200 ICP AQ	EPA 200 ICP, 200.7 mod.	<0.010	mg/L	03/30/1995		490	ecw

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-3

NET Sample No: 120636

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
Aqueous Digestion EPA200 AQ	EPA 200 mod	03/28/1995	date	03/28/1995	5661cw		gsw
Cadmium (Cd) 200 ICP AQ	EPA 200 ICP, 200.7mod.	<0.0050	mg/L	03/30/1995		510	ecw
Chromium (Cr) 200 ICP AQ	EPA 200 ICP, 200.7 mod.	<0.010	mg/L	03/30/1995		490	ecw

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: KOW-2

NET Sample No: 120637

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
Aqueous Digestion EPA200 AQ	EPA 200 mod	03/28/1995	date	03/28/1995	5661cw		gsw
Cadmium (Cd) 200 ICP AQ	EPA 200 ICP, 200.7mod.	<0.0074	mg/L	03/30/1995		510	ecw
Chromium (Cr) 200 ICP AQ	EPA 200 ICP, 200.7 mod.	<0.010	mg/L	03/30/1995		490	ecw

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: MW-5

NET Sample No: 120638

Parameter	Method	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
Aqueous Digestion	EPA200 AQ EPA 200 mod	03/28/1995	date	03/28/1995	5661cw		gsw
Cadmium (Cd)	200 ICP AQ EPA 200 ICP, 200.7mod.	<0.0050	mg/L	03/30/1995		510	ecw
Chromium (Cr)	200 ICP AQ EPA 200 ICP, 200.7 mod.	<0.010	mg/L	03/30/1995		490	ecw

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: KOW-2

NET Sample No: 120637

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	170	ug/L	03/31/1995		2247	jpt
Benzene	<10.	ug/L				
Bromodichloromethane	<10.	ug/L				
Bromoform	<10.	ug/L				
Bromomethane	<10.	ug/L				
2-Butanone (MEK)	<50.	ug/L				
Carbon Disulfide	<10.	ug/L				
Carbon Tetrachloride	<10.	ug/L				
Chlorobenzene	<10.	ug/L				
Chloroethane	<10.	ug/L				
2-Chloroethylvinyl ether	<10.	ug/L				
Chloroform	<10.	ug/L				
Chloromethane	<10.	ug/L				
Dibromochloromethane	<10.	ug/L				
1,2-Dichlorobenzene	<10.	ug/L				
1,3-Dichlorobenzene	<10.	ug/L				
1,4-Dichlorobenzene	<10.	ug/L				
1,1-Dichloroethane	<10.	ug/L				
1,2-Dichloroethane	<10.	ug/L				
1,1-Dichloroethene	<10.	ug/L				
1,2-Dichloroethene (total)	<10.	ug/L				
1,2-Dichloropropane	<10.	ug/L				
cis-1,3-Dichloropropene	<10.	ug/L				
trans-1,3-Dichloropropene	<10.	ug/L				
Ethylbenzene	<10.	ug/L				
2-Hexanone	<50.	ug/L				
4-Methyl-2-pentanone (MIBK	<50.	ug/L				
Methylene Chloride	<10.	ug/L				
Styrene	<10.	ug/L				
1,1,2,2-Tetrachloroethane	<10.	ug/L				
Tetrachloroethene	<10.	ug/L				
Toluene	<10.	ug/L				
1,1,1-Trichloroethane	<10.	ug/L				
1,1,2-Trichloroethane	<10.	ug/L				
Trichloroethene	<10.	ug/L				
Trichlorofluoromethane	<10.	ug/L				
Vinyl Acetate	<10.	ug/L				
Vinyl Chloride	<10.	ug/L				
m-Xylene	<10.	ug/L				
o-Xylene	<10.	ug/L				
p-Xylene	<10.	ug/L				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: MW-5

NET Sample No: 120638

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	<25	ug/L	03/30/1995		2238	jpt
Benzene	<5.0	ug/L				
Bromodichloromethane	<5.0	ug/L				
Bromoform	<5.0	ug/L				
Bromomethane	<5.0	ug/L				
2-Butanone (MEK)	<25	ug/L				
Carbon Disulfide	<5.0	ug/L				
Carbon Tetrachloride	<5.0	ug/L				
Chlorobenzene	<5.0	ug/L				
Chloroethane	<5.0	ug/L				
2-Chloroethylvinyl ether	<5.0	ug/L				
Chloroform	<5.0	ug/L				
Chloromethane	<5.0	ug/L				
Dibromochloromethane	<5.0	ug/L				
1,2-Dichlorobenzene	<5.0	ug/L				
1,3-Dichlorobenzene	<5.0	ug/L				
1,4-Dichlorobenzene	<5.0	ug/L				
1,1-Dichloroethane	<5.0	ug/L				
1,2-Dichloroethane	<5.0	ug/L				
1,1-Dichloroethene	<5.0	ug/L				
1,2-Dichloroethene (total)	<5.0	ug/L				
1,2-Dichloropropane	<5.0	ug/L				
cis-1,3-Dichloropropene	<5.0	ug/L				
trans-1,3-Dichloropropene	<5.0	ug/L				
Ethylbenzene	<5.0	ug/L				
2-Hexanone	<25	ug/L				
4-Methyl-2-pentanone (MIBK	<25	ug/L				
Methylene Chloride	<5.0	ug/L				
Styrene	<5.0	ug/L				
1,1,2,2-Tetrachloroethane	<5.0	ug/L				
Tetrachloroethene	<5.0	ug/L				
Toluene	<5.0	ug/L				
1,1,1-Trichloroethane	<5.0	ug/L				
1,1,2-Trichloroethane	<5.0	ug/L				
Trichloroethene	<5.0	ug/L				
Trichlorofluoromethane	<5.0	ug/L				
Vinyl Acetate	<5.0	ug/L				
Vinyl Chloride	<5.0	ug/L				
m-Xylene	<5.0	ug/L				
o-Xylene	<5.0	ug/L				
p-Xylene	<5.0	ug/L				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-1

NET Sample No: 120639

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	67	ug/L	03/30/1995		2239	jpt
Benzene	<5.0	ug/L				
Bromodichloromethane	<5.0	ug/L				
Bromoform	<5.0	ug/L				
Bromomethane	<5.0	ug/L				
2-Butanone (MEK)	<25	ug/L				
Carbon Disulfide	<5.0	ug/L				
Carbon Tetrachloride	<5.0	ug/L				
Chlorobenzene	<5.0	ug/L				
Chloroethane	<5.0	ug/L				
2-Chloroethylvinyl ether	<5.0	ug/L				
Chloroform	<5.0	ug/L				
Chloromethane	<5.0	ug/L				
Dibromochloromethane	<5.0	ug/L				
1,2-Dichlorobenzene	<5.0	ug/L				
1,3-Dichlorobenzene	<5.0	ug/L				
1,4-Dichlorobenzene	<5.0	ug/L				
1,1-Dichloroethane	<5.0	ug/L				
1,2-Dichloroethane	<5.0	ug/L				
1,1-Dichloroethene	<5.0	ug/L				
1,2-Dichloroethene (total)	<5.0	ug/L				
1,2-Dichloropropane	<5.0	ug/L				
cis-1,3-Dichloropropene	<5.0	ug/L				
trans-1,3-Dichloropropene	<5.0	ug/L				
Ethylbenzene	<5.0	ug/L				
2-Hexanone	<25	ug/L				
4-Methyl-2-pentanone (MIBK	<25	ug/L				
Methylene Chloride	<5.0	ug/L				
Styrene	<5.0	ug/L				
1,1,2,2-Tetrachloroethane	<5.0	ug/L				
Tetrachloroethene	<5.0	ug/L				
Toluene	<5.0	ug/L				
1,1,1-Trichloroethane	<5.0	ug/L				
1,1,2-Trichloroethane	<5.0	ug/L				
Trichloroethene	<5.0	ug/L				
Trichlorofluoromethane	<5.0	ug/L				
Vinyl Acetate	<5.0	ug/L				
Vinyl Chloride	<5.0	ug/L				
m-Xylene	<5.0	ug/L				
o-Xylene	<5.0	ug/L				
p-Xylene	<5.0	ug/L				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-5

NET Sample No: 120640

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	280	ug/L	03/31/1995		2247	jpt
Benzene	<10.	ug/L				
Bromodichloromethane	<10.	ug/L				
Bromoform	<10.	ug/L				
Bromomethane	<10.	ug/L				
2-Butanone (MEK)	<50.	ug/L				
Carbon Disulfide	<10.	ug/L				
Carbon Tetrachloride	<10.	ug/L				
Chlorobenzene	<10.	ug/L				
Chloroethane	<10.	ug/L				
2-Chloroethylvinyl ether	<10.	ug/L				
Chloroform	<10.	ug/L				
Chloromethane	<10.	ug/L				
Dibromochloromethane	<10.	ug/L				
1,2-Dichlorobenzene	<10.	ug/L				
1,3-Dichlorobenzene	<10.	ug/L				
1,4-Dichlorobenzene	<10.	ug/L				
1,1-Dichloroethane	<10.	ug/L				
1,2-Dichloroethane	<10.	ug/L				
1,1-Dichloroethene	<10.	ug/L				
1,2-Dichloroethene (total)	<10.	ug/L				
1,2-Dichloropropane	<10.	ug/L				
cis-1,3-Dichloropropene	<10.	ug/L				
trans-1,3-Dichloropropene	<10.	ug/L				
Ethylbenzene	<10.	ug/L				
2-Hexanone	<50.	ug/L				
4-Methyl-2-pentanone (MIBK	<50.	ug/L				
Methylene Chloride	<10.	ug/L				
Styrene	<10.	ug/L				
1,1,2,2-Tetrachloroethane	<10.	ug/L				
Tetrachloroethene	<10.	ug/L				
Toluene	<10.	ug/L				
1,1,1-Trichloroethane	<10.	ug/L				
1,1,2-Trichloroethane	<10.	ug/L				
Trichloroethene	<10.	ug/L				
Trichlorofluoromethane	<10.	ug/L				
Vinyl Acetate	<10.	ug/L				
Vinyl Chloride	<10.	ug/L				
m-Xylene	<10.	ug/L				
o-Xylene	<10.	ug/L				
p-Xylene	<10.	ug/L				

NET Cambridge Division

ANALYTICAL REPORT

Report Date: 04/06/1995

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Date Rec'd: 03/27/1995

Sample ID: CMW-6

NET Sample No: 120641

Parameter	Result	Units	Analysis Date	Prep Batch	Run Batch	Analyst
TCL Volatiles by GC/MS 8240 AQ						
Acetone	<25	ug/L	03/31/1995		2247	jpt
Benzene	<5.0	ug/L				
Bromodichloromethane	<5.0	ug/L				
Bromoform	<5.0	ug/L				
Bromomethane	<5.0	ug/L				
2-Butanone (MEK)	<25	ug/L				
Carbon Disulfide	<5.0	ug/L				
Carbon Tetrachloride	<5.0	ug/L				
Chlorobenzene	<5.0	ug/L				
Chloroethane	<5.0	ug/L				
2-Chloroethylvinyl ether	<5.0	ug/L				
Chloroform	<5.0	ug/L				
Chloromethane	<5.0	ug/L				
Dibromochloromethane	<5.0	ug/L				
1,2-Dichlorobenzene	<5.0	ug/L				
1,3-Dichlorobenzene	<5.0	ug/L				
1,4-Dichlorobenzene	<5.0	ug/L				
1,1-Dichloroethane	<5.0	ug/L				
1,2-Dichloroethane	<5.0	ug/L				
1,1-Dichloroethene	<5.0	ug/L				
1,2-Dichloroethene (total)	<5.0	ug/L				
1,2-Dichloropropane	<5.0	ug/L				
cis-1,3-Dichloropropene	<5.0	ug/L				
trans-1,3-Dichloropropene	<5.0	ug/L				
Ethylbenzene	<5.0	ug/L				
2-Hexanone	<25	ug/L				
4-Methyl-2-pentanone (MIBK	<25	ug/L				
Methylene Chloride	<5.0	ug/L				
Styrene	<5.0	ug/L				
1,1,2,2-Tetrachloroethane	<5.0	ug/L				
Tetrachloroethene	<5.0	ug/L				
Toluene	<5.0	ug/L				
1,1,1-Trichloroethane	<5.0	ug/L				
1,1,2-Trichloroethane	<5.0	ug/L				
Trichloroethene	<5.0	ug/L				
Trichlorofluoromethane	<5.0	ug/L				
Vinyl Acetate	<5.0	ug/L				
Vinyl Chloride	<5.0	ug/L				
m-Xylene	<5.0	ug/L				
o-Xylene	<5.0	ug/L				
p-Xylene	<5.0	ug/L				

NET QC SUMMARY - INORGANICS REPORT

NET - CAMBRIDGE DIVISION
DATE OF REPORT : 03/31/1995

WORK ID :
BATCH : 5661CW

LABOROATRY CONTROL STANDARD : 5661CW

	True	Found	Units	%REC
Element :				
Cd	1.0	0.93	mg/L	93
Cr	1.0	0.94	mg/L	94

DUPE : 95.00997 - 120468 (5661CW)

	Sample	Duplicate	Units	% RPD
Element :				
Cd	<0.0050	<0.0050	mg/L	----
Cr	0.049	0.045	mg/L	9

BLANK : 5661CW

Found in mg/L	PBW1
Element :	
Cd	<0.0050
Cr	<0.010

MATRIX SPIKE : 94.00997 - 120469 5661CW

	Sample	Spike	Added	Units	% Rec
Element :					
Cd	<0.0050	0.052	0.050	mg/L	104
Cr	<0.010	0.20	0.20	mg/L	100

NET Cambridge Division

QUALITY CONTROL DATA

Client: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Report Date: 04/06/1995

Surrogate Standard Percent Recovery

Abbreviated Surrogate Standard Names:

SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12
Bromofl	1,2-Dic	Toluene									

			Percent Recovery										
Sample ID	NET ID	Matrix	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12
CMW-2	120635	GROUND WATER	105	100	104									
CMW-3	120636	GROUND WATER	99	106	107									
KOW-2	120637	GROUND WATER	107	100	107									
MW-5	120638	GROUND WATER	95	103	98									
CMW-1	120639	GROUND WATER	105	99	106									
CMW-5	120640	GROUND WATER	109	102	108									
CMW-6	120641	GROUND WATER	106	99	107									

Notes:
NR - This surrogate standard is Not Required. Other versions of this test method may use this surrogate standard.
Dil - This surrogate standard was diluted to below detectable levels due to concentrations of analytes in this sample.

Complete Surrogate Standard Names Listed by Analysis:

Pesticide Surrogate Standards:
Decachl = Decachlorobiphenyl
Dibutyl = Dibutylchlorendate
Tetrach = Tetrachloro-m-xylene

Volatile Surrogate Standards:
Bromofl = Bromofluorobenzene
1,2-Dichl = 1,2-Dichloroethane-d4
Toluene = Toluene-d8

Drinking Water Method 524
1,2-Dichl = 1,2-Dichlorobenzene-d4

Semivolatile Surrogate Standards:
2-Fluor (1st) = 2-Fluorobiphenyl
2-Fluor (2nd) = 2-Fluorophenol
Phenol- = Phenol-d6
Nitrobe = Nitrobenzene-d5
2,4,6-T = 2,4,6-Tribromophenol
p-Terph = p-Terphenyl

Herbicides Surrogate Standard:
2,4-Dic = 2,4-Dichlorophenyl acetic acid

Petroleum Hydrocarbon Fingerprint Surrogate Standard:
2-Fluor = 2-Fluorobiphenyl
para-Te = para-Terphynyl

NET Cambridge Division

QUALITY CONTROL DATA

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Report Date : 04/06/1995

Method Blank Analysis Data

Test Name	Result	Units	Prep Batch	Run Batch	Run Date	Analyst Initials
TCL Volatiles by GC/MS 8240 AQ						
Bromofluorobenzene	95	% recov.		2239	03/30/1995	jpt
1,2-Dichloroethane-d4	93	% recov.		2239	03/30/1995	jpt
Toluene-d8	96	% recov.		2239	03/30/1995	jpt
Acetone	<25	ug/L		2239	03/30/1995	jpt
Benzene	<5	ug/L		2239	03/30/1995	jpt
Bromodichloromethane	<5	ug/L		2239	03/30/1995	jpt
Bromoform	<5	ug/L		2239	03/30/1995	jpt
Bromomethane	<5	ug/L		2239	03/30/1995	jpt
2-Butanone (MEK)	<25	ug/L		2239	03/30/1995	jpt
Carbon Disulfide	<5	ug/L		2239	03/30/1995	jpt
Carbon Tetrachloride	<5	ug/L		2239	03/30/1995	jpt
Chlorobenzene	<5	ug/L		2239	03/30/1995	jpt
Chloroethane	<5	ug/L		2239	03/30/1995	jpt
2-Chloroethylvinyl ether	<5	ug/L		2239	03/30/1995	jpt
Chloroform	<5	ug/L		2239	03/30/1995	jpt
Chloromethane	<5	ug/L		2239	03/30/1995	jpt
Dibromochloromethane	<5	ug/L		2239	03/30/1995	jpt
1,2-Dichlorobenzene	<5	ug/L		2239	03/30/1995	jpt
1,3-Dichlorobenzene	<5	ug/L		2239	03/30/1995	jpt
1,4-Dichlorobenzene	<5	ug/L		2239	03/30/1995	jpt
1,1-Dichloroethane	<5	ug/L		2239	03/30/1995	jpt
1,2-Dichloroethane	<5	ug/L		2239	03/30/1995	jpt
1,1-Dichloroethene	<5	ug/L		2239	03/30/1995	jpt
1,2-Dichloroethene (total)	<5	ug/L		2239	03/30/1995	jpt
1,2-Dichloropropane	<5	ug/L		2239	03/30/1995	jpt
cis-1,3-Dichloropropene	<5	ug/L		2239	03/30/1995	jpt
trans-1,3-Dichloropropene	<5	ug/L		2239	03/30/1995	jpt
Ethylbenzene	<5	ug/L		2239	03/30/1995	jpt
2-Hexanone	<25	ug/L		2239	03/30/1995	jpt
Methylene Chloride	<5	ug/L		2239	03/30/1995	jpt
4-Methyl-2-pentanone (MIBK	<25	ug/L		2239	03/30/1995	jpt
Styrene	<5	ug/L		2239	03/30/1995	jpt
1,1,2,2-Tetrachloroethane	<5	ug/L		2239	03/30/1995	jpt
Tetrachloroethene	<5	ug/L		2239	03/30/1995	jpt
Toluene	<5	ug/L		2239	03/30/1995	jpt
1,1,1-Trichloroethane	<5	ug/L		2239	03/30/1995	jpt
1,1,2-Trichloroethane	<5	ug/L		2239	03/30/1995	jpt
Trichloroethene	<5	ug/L		2239	03/30/1995	jpt
Trichlorofluoromethane	<5	ug/L		2239	03/30/1995	jpt
Vinyl Acetate	<5	ug/L		2239	03/30/1995	jpt
Vinyl Chloride	<5	ug/L		2239	03/30/1995	jpt
m-Xylene	<5	ug/L		2239	03/30/1995	jpt
o-Xylene	<5	ug/L		2239	03/30/1995	jpt
p-Xylene	<5	ug/L		2239	03/30/1995	jpt

NET Cambridge Division

QUALITY CONTROL DATA

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Report Date : 04/06/1995

Method Blank Analysis Data

Test Name	Result	Units	Prep Batch	Run Batch	Run Date	Analyst Initials
TCL Volatiles by GC/MS 8240 AQ						
Bromofluorobenzene	95	% recov.		2239	03/30/1995	jpt
1,2-Dichloroethane-d4	93	% recov.		2239	03/30/1995	jpt
Toluene-d8	96	% recov.		2239	03/30/1995	jpt
Acetone	<5.0	ug/L		2239	03/30/1995	jpt
Benzene	<1.	ug/L		2239	03/30/1995	jpt
Bromodichloromethane	<1.	ug/L		2239	03/30/1995	jpt
Bromoform	<1.	ug/L		2239	03/30/1995	jpt
Bromomethane	<1.	ug/L		2239	03/30/1995	jpt
2-Butanone (MEK)	<5.0	ug/L		2239	03/30/1995	jpt
Carbon Disulfide	<1.	ug/L		2239	03/30/1995	jpt
Carbon Tetrachloride	<1.	ug/L		2239	03/30/1995	jpt
Chlorobenzene	<1.	ug/L		2239	03/30/1995	jpt
Chloroethane	<1.	ug/L		2239	03/30/1995	jpt
2-Chloroethylvinyl ether	<1.	ug/L		2239	03/30/1995	jpt
Chloroform	<1.	ug/L		2239	03/30/1995	jpt
Chloromethane	<1.	ug/L		2239	03/30/1995	jpt
Dibromochloromethane	<1.	ug/L		2239	03/30/1995	jpt
1,2-Dichlorobenzene	<1.	ug/L		2239	03/30/1995	jpt
1,3-Dichlorobenzene	<1.	ug/L		2239	03/30/1995	jpt
1,4-Dichlorobenzene	<1.	ug/L		2239	03/30/1995	jpt
1,1-Dichloroethane	<1.	ug/L		2239	03/30/1995	jpt
1,2-Dichloroethane	<1.	ug/L		2239	03/30/1995	jpt
1,1-Dichloroethene	<1.	ug/L		2239	03/30/1995	jpt
1,2-Dichloroethene (total)	<1.	ug/L		2239	03/30/1995	jpt
1,2-Dichloropropane	<1.	ug/L		2239	03/30/1995	jpt
cis-1,3-Dichloropropene	<1.	ug/L		2239	03/30/1995	jpt
trans-1,3-Dichloropropene	<1.	ug/L		2239	03/30/1995	jpt
Ethylbenzene	<1.	ug/L		2239	03/30/1995	jpt
2-Hexanone	<5.0	ug/L		2239	03/30/1995	jpt
Methylene Chloride	1	ug/L		2239	03/30/1995	jpt
4-Methyl-2-pentanone (MIBK	<5.0	ug/L		2239	03/30/1995	jpt
Styrene	<1.	ug/L		2239	03/30/1995	jpt
1,1,2,2-Tetrachloroethane	<1.	ug/L		2239	03/30/1995	jpt
Tetrachloroethene	<1.	ug/L		2239	03/30/1995	jpt
Toluene	<1.	ug/L		2239	03/30/1995	jpt
1,1,1-Trichloroethane	<1.	ug/L		2239	03/30/1995	jpt
1,1,2-Trichloroethane	<1.	ug/L		2239	03/30/1995	jpt
Trichloroethene	<1.	ug/L		2239	03/30/1995	jpt
Trichlorofluoromethane	<1.	ug/L		2239	03/30/1995	jpt
Vinyl Acetate	<1.	ug/L		2239	03/30/1995	jpt
Vinyl Chloride	<1.	ug/L		2239	03/30/1995	jpt
m-Xylene	<1.	ug/L		2239	03/30/1995	jpt
o-Xylene	<1.	ug/L		2239	03/30/1995	jpt
p-Xylene	<1.	ug/L		2239	03/30/1995	jpt

NET Cambridge Division

QUALITY CONTROL DATA

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Report Date : 04/06/1995

Method Blank Analysis Data

Test Name	Result	Units	Prep Batch	Run Batch	Run Date	Analyst Initials
TCL Volatiles by GC/MS 8240 AQ						
Bromofluorobenzene	107	% recov.		2247	03/31/1995	jpt
1,2-Dichloroethane-d4	106	% recov.		2247	03/31/1995	jpt
Toluene-d8	107	% recov.		2247	03/31/1995	jpt
Acetone	<25	ug/L		2247	03/31/1995	jpt
Benzene	<5	ug/L		2247	03/31/1995	jpt
Bromodichloromethane	<5	ug/L		2247	03/31/1995	jpt
Bromoform	<5	ug/L		2247	03/31/1995	jpt
Bromomethane	<5	ug/L		2247	03/31/1995	jpt
2-Butanone (MEK)	<25	ug/L		2247	03/31/1995	jpt
Carbon Disulfide	<5	ug/L		2247	03/31/1995	jpt
Carbon Tetrachloride	<5	ug/L		2247	03/31/1995	jpt
Chlorobenzene	<5	ug/L		2247	03/31/1995	jpt
Chloroethane	<5	ug/L		2247	03/31/1995	jpt
2-Chloroethylvinyl ether	<5	ug/L		2247	03/31/1995	jpt
Chloroform	<5	ug/L		2247	03/31/1995	jpt
Chloromethane	<5	ug/L		2247	03/31/1995	jpt
Dibromochloromethane	<5	ug/L		2247	03/31/1995	jpt
1,2-Dichlorobenzene	<5	ug/L		2247	03/31/1995	jpt
1,3-Dichlorobenzene	<5	ug/L		2247	03/31/1995	jpt
1,4-Dichlorobenzene	<5	ug/L		2247	03/31/1995	jpt
1,1-Dichloroethane	<5	ug/L		2247	03/31/1995	jpt
1,2-Dichloroethane	<5	ug/L		2247	03/31/1995	jpt
1,1-Dichloroethene	<5	ug/L		2247	03/31/1995	jpt
1,2-Dichloroethene (total)	<5	ug/L		2247	03/31/1995	jpt
1,2-Dichloropropane	<5	ug/L		2247	03/31/1995	jpt
cis-1,3-Dichloropropene	<5	ug/L		2247	03/31/1995	jpt
trans-1,3-Dichloropropene	<5	ug/L		2247	03/31/1995	jpt
Ethylbenzene	<5	ug/L		2247	03/31/1995	jpt
2-Hexanone	<25	ug/L		2247	03/31/1995	jpt
Methylene Chloride	<5	ug/L		2247	03/31/1995	jpt
4-Methyl-2-pentanone (MIBK	<25	ug/L		2247	03/31/1995	jpt
Styrene	<5	ug/L		2247	03/31/1995	jpt
1,1,2,2-Tetrachloroethane	<5	ug/L		2247	03/31/1995	jpt
Tetrachloroethene	<5	ug/L		2247	03/31/1995	jpt
Toluene	<5	ug/L		2247	03/31/1995	jpt
1,1,1-Trichloroethane	<5	ug/L		2247	03/31/1995	jpt
1,1,2-Trichloroethane	<5	ug/L		2247	03/31/1995	jpt
Trichloroethene	<5	ug/L		2247	03/31/1995	jpt
Trichlorofluoromethane	<5	ug/L		2247	03/31/1995	jpt
Vinyl Acetate	<5	ug/L		2247	03/31/1995	jpt
Vinyl Chloride	<5	ug/L		2247	03/31/1995	jpt
m-Xylene	<5	ug/L		2247	03/31/1995	jpt
o-Xylene	<5	ug/L		2247	03/31/1995	jpt
p-Xylene	<5	ug/L		2247	03/31/1995	jpt

NET Cambridge Division

QUALITY CONTROL DATA

Report To: Coneco Environmental

NET Job No: 95.01040

Project: 230/238 Bodwell Street

Report Date: 04/06/1995

Matrix Spike/Matrix Spike Duplicate Results

Compound	Spike Amount	Sample Result	Units	MS Result	MS % Recovery	MSD Result	MSD % Recovery	RPD
TCL Volatiles by GC/MS 8240 AQ								
Benzene	50	<5.0	ug/L	54.6	109.2	55.8	111.6	2.2
Chlorobenzene	50	<5.0	ug/L	52.4	104.8	51.9	103.8	1.0
1,1-Dichloroethene	50	<5.0	ug/L	51.7	103.4	52.8	105.6	2.1
Toluene	50	<5.0	ug/L	52.4	104.8	51.6	103.2	1.5
Trichloroethene	50	<5.0	ug/L	51.5	103.0	51.5	103.0	0.0

NOTE: Data reported for spiked samples were analyzed in the same batch, but may not necessarily be that of your sample.

95-00930

CHAIN OF CUSTODY RECORD

PROJECT NAME Proj. 3184, 230 & 238 Bedford St., Auen
COMPANY Conneco Environmental
ADDRESS 4 First Street, Bridgewater MA
PHONE (508) 697-3191

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Atlantic, Inc., Cambridge Division, 12 Oak Drive, Bedford, MA 01730
Formerly Cambridge Analytical Associates, Inc.

SAMPLED BY

Derek C. Volkin (Print Name) — Derek C. Volkin (Signature)

(Print Name) — (Signature)

SAMPLE NO.	DATE	TIME	SAMPLE LOCATION	CONTAINER SIZE	CONTAINER G/P	GRAB	COMP	NO. OF CONTAINERS	SAMPLE MATRIX	PRESERVATIVE	Volatile Organics 8240	Extractable Organics	Pesticides/PCBs	Metals	Cyanide	Phenols	TPH 418.1				COMMENTS
B-8/S-3	3/12	AM	(4-6')	4oz	G	X		1	Soil	None	X						X				
B-9/S-3		AM	(4-6')					1			X						X				
B-10/S-1		AM	(0-1.5')					1			X						X				
B-12/S-3		PM	(4-5')					1			X						X				
B-13/S-2		PM	(2-4')					1			X						X				
B-15/S-3		PM	(4-5')					1			X						X				

Relinquished by:	Date / Time	Received by:	Relinquished by:	Date / Time	Received by:
Derek C. Volkin	3/21 9:00	Michael McDermott			
Relinquished by:	Date / Time	Received by:	Relinquished by:	Date / Time	Received for Laboratory by:

Method of Shipment

Remarks:
STD QC; 5-Day Turnaround

PT 1 — ORIGINAL PT 2 NET Project Manager—Yellow PT 3—Customer Copy—Pink

95.01040

CHAIN OF CUSTODY RECORD

PROJECT NAME 230/238 Bedwell St., Avon Proj #3104
COMPANY CONTECH ENVIRONMENTAL
ADDRESS 4 FIRST STREET, BELMONT, MA
PHONE (508) 697-3191

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Atlantic, Inc., Cambridge Division, 12 Oak Drive, Bedford, MA 01730
Formerly Cambridge Analytical Associates, Inc.

SAMPLED BY
Derek C. Volkin (Print Name) — Signature
(Print Name) — Signature

SAMPLE NO.	DATE	TIME	SAMPLE LOCATION	CONTAINER SIZE	CONTAINER G/P	GRAB	COMP	NO. OF CONTAINERS	SAMPLE MATRIX	PRESERVATIVE	ANALYSES: Volatile Organics 8240	Extractable Organics	Pesticides/PCBs	Metals	Cyanide	Phenols	Diss. Cadmium and Chromium (ICP)				COMMENTS
CMW-1	3/24	4:30		40z	G	X		2	H_2O	HCL	X										
CMW-2	3/24	5:15		40z	G	X		2		HCL	X										
CMW-2	3/24	5:20		1L	P	X		1		HNO_3						X					
CMW-3	3/24	6:00		40z	G	X		2		HCL	X										
CMW-3	3/24	6:45		1L	P	X		1		HNO_3						X					
CMW-5	3/24	5:40		40z	G	X		2		HCL	X										
CMW-6	3/24	6:15		40z	G	X		2		HCL	X										
KOW-2	3/24	6:15		40z	G	X		2		HCL	X										
KOW-2	3/24	6:15		1L	P	X		1		HNO_3						X					
MW-5	3/24	5:00		40z	G	X		2		HCL	X										
MW-5	3/24	5:05		1L	P	X		1		HNO_3						X					

Relinquished by:	Date / Time	Received by:	Relinquished by:	Date / Time	Received by:
Derek C. Volkin	3/27/95 12:00			3/27 12:50	G. Barker
Relinquished by:	Date / Time	Received by:	Relinquished by:	Date / Time	Received for Laboratory by:

Method of Shipment

Remarks:

PT 1 — ORIGINAL PT 2 NET Project Manager—Yellow PT 3—Customer Copy—Pink

Appendix H

Supplemental Risk Reduction Form

Massachusetts Department of Environmental Protection **BWSC-010**
Bureau of Waste Site Cleanup

SUPPLEMENTAL RISK REDUCTION TRANSMITTAL FORM (pursuant to 310 CMR 40.0400)

Release Tracking Number: 4 - 0634

A. RELEASE OR THREAT OF RELEASE (TOR) LOCATION:

Release Name (optional): Winchester Industries, Inc.
Street: 230 Bodwell Street Location Aid: Ledin Drive
City/Town: Avon Zip Code: 02322 -
Additional Release Tracking Numbers that this Transmittal Form Will Address:

B. PERSON SUBMITTING THIS TRANSMITTAL FORM:

Name of Organization: Former Winchester Industries, Inc.
Name of Contact: Peter Runton Title:
Street: 130 Randolph Avenue
City/Town: Milton State: MA Zip Code: 02186 -
Telephone: 617 - 698 - 7557 Ext.

C. RELATIONSHIP TO RELEASE OR TOR OF PERSON SUBMITTING THIS TRANSMITTAL FORM:

(check one/specify)

- [X] RP Specify (circle one): (Owner) Operator Generator Transporter Other RP:
- [ ] PRP Specify (circle one): Owner Operator Generator Transporter Other PRP:
- [ ] Fiduciary/Secured Lender
- [ ] Agency/Public Utility on a Right of Way
- [ ] Other Person:

D. DOCUMENT BEING SUBMITTED:

(check one)

- [ ] Immediate Response Action (IRA) Status Report (pursuant to 310 CMR 40.0425)
- [ ] Release Abatement Measure (RAM) Status Report (pursuant to 310 CMR 40.0445)
- [ ] Utility-Related Abatement Measure (URAM) Status Report (pursuant to 310 CMR 40.0465)

Include the following information in all Status Reports:

1. A description of the current status of assessment and/or remedial actions;
2. Any significant new site information or data.
3. Current details of and/or plans for management of Remediation Waste.
4. Monitoring data related to the operation of remedial action treatment systems not already submitted to the Department.
5. Any other information required by the Department as part of its approval of a RAM Plan, an IRA Plan or any other approval.

- [X] Phase I Completion Statement (pursuant to 310 CMR 40.0484). Attach this Transmittal Form to the Phase I Report and check one of the following:
  - [ ] A Comprehensive Response Action is necessary at this site.
  - [X] Requirements of either a Class A or Class B Response Action Outcome have been met and this document is submitted in support of a Response Action Outcome Statement.

Massachusetts Department of Environmental Protection **BWSC-0.10**
Bureau of Waste Site Cleanup

SUPPLEMENTAL RISK REDUCTION TRANSMITTAL FORM (pursuant to 310 CMR 40.0400)

Release Tracking Number: 4 - 0634

E. LSP WHO PREPARED THIS SUPPLEMENTAL RISK REDUCTION TRANSMITTAL FORM:

Name of Organization: CONECO Environmental Corp.

LSP Name: Ronald F. Bukoski Title: Principal

Telephone: 508 - 697 - 3191 Ext.

I attest that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this attestation, and in my professional judgment, the response action(s) that is the subject of this submittal complies with the provisions of M.G.L. c. 21A, §§ 19-19J, 309 CMR, M.G.L. c. 21E, 310 CMR 40.0000, and all other laws, regulations, orders, permits, and approvals applicable to such response action(s). I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I wilfully submit information which I know to be false, inaccurate or incomplete.

Signature: Ronald F. Bukoski Seal:

Date: 4 / 19 / 95

License Number: 5248

COMMONWEALTH OF MASSACHUSETTS
RONALD F. BUKOSKI NO.5248
REGISTERED LICENSED SITE PROFESSIONAL

F. CERTIFICATION OF PERSON CONDUCTING THE ACTION DESCRIBED ON THIS FORM:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for wilfully submitting false, inaccurate, or incomplete information.

Signature: Peter Runton Date: 4 / 19 / 95

Name of Person (print): Mr. Peter Runton